Telephony

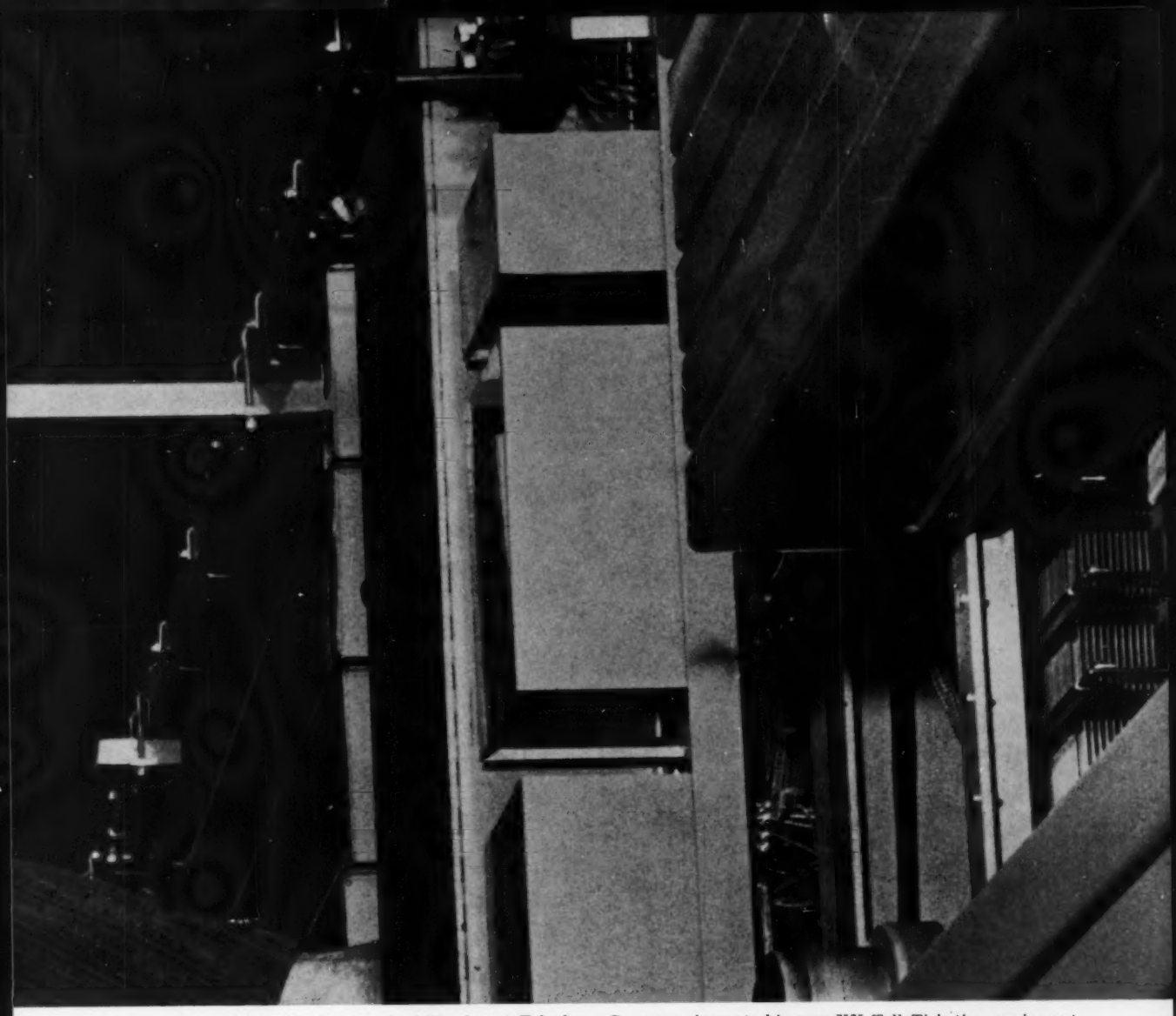
THE JOURNAL OF THE TELEPHONE INDUSTRY

'COPTERS TO THE FRONT

Jagged outcroppings of rock along the Greenland coast make helicopters the only means of access for men and material during recent initial operations in extending DEW Line radar defense chain. See page 32 for story.

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

XY® Toll Ticketing: 28% revenue increase...



James M. Wells, President of Northwest Telephone Company, inspects his new XY Toll Ticketing equipment.

in Redmond, Oregon

This report from Northwest Telephone Company of Redmond tells the story of XY Toll Ticketing in operation:

"Most important to the operating company . . . As a result of our installations, revenues have increased 28% intra-company and 12% inter-company, while maintenance has decreased."

The first company in Oregon to offer its subscribers state- and nation-wide toll dialing, Northwest is justly proud of its position—attained with the help and cooperation of employees and suppliers.

You, too, can enjoy the extra revenue of D.D.D. —and do it more *profitably* with XY Toll Ticketing. Contact your Stromberg-Carlson representative.

STROMBERG-CARLSON

A DIVISION OF **GENERAL DYNAMICS CORPORATION**

ATLANTA: TRinity 5-7467 • **CHICAGO:** STate 2-4235 • **KANSAS CITY:** HArrison 1-6618 • **ROCHESTER:** HUbbard 2-2200 • **SAN FRANCISCO:** OXford 7-3630

FLASHES AND PLUGS

ASTDG KLKSHN! The telephone directory contains an astounding number of abbreviations, reminds AT&T's *Long Lines*.

There is a group of abbreviations experts who "hammer, clip and squeeze until, if possible, each listing fits into a single line."

Among the short cuts, the reader may find "dealers in linolm, stks and bonds, greetg cds, intr decrts and dmnd ctrs."

Long Lines' editor sums it up thus: "Reading over the list we cannot help but feel that the abbreviations experts have—dne a gd jb.

•

SQUAAK . . . SQUEEK . . . SQUICK. An energetic reporter for the Newark (N. J.), *Sunday Star-Ledger* recently related his frustrating experiences in trying to converse by radio-telephone with New Jersey's Governor Meyner, who was touring Russia.

"Governor," asked the reporter, "do you think it will be useful to Premier Khrushchev to visit America?"

The answer from the governor's end of the connection in Russia was a raucous "squaak, squeek, squaak, squaak." When requested to repeat the comment, the governor's voice went "squeek, squaak, squick."

"Can you hear us?" persisted the reporter.

"I hear you fine," answered the governor, and what he said after that was a decided "squaak."

What was the governor's biggest impression, so far, of his visit in the USSR?

"I think," began Governor Meyner, and then, there was considerable static.

Perhaps, if they stuck to questions requiring "yes" and "no" answers—

"Was the Moscow circus as good as Ringling's?"

"Great!" responded the governor. "Yaak, squaak."

Another tack, thought the reporter. The governor had conferred with Russian Health Minister Sergie V. Kurashov, and visited a Soviet hospital. "How did the Russian hospital compare with one in New Jersey?"

"They're making an effort," commented the governor.

"Has the trip broadened your perspective?" asked the reporter.

"It's a little difficult to say," came the answer, followed by another round of interference.

The reporter thanked the governor for the interview and hung up. He doubted that all the "squaack, squeek, squick" was actual static, and that the interrupted interview was worth the $40 he spent for the call.

CHANGE OF ADDRESS

Please notify your local postmaster and the Circulation Dept. of TELEPHONY of change of address. Change cannot be made without the old as well as the new address. Allow three weeks for change of address to become effective.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1901

AUGUST 15, 1959

CONTENTS

IN THE NATION'S CAPITAL 17
By Francis X. Welch

FORMULATING BANDED LOCAL SERVICE RATES. 19
By Marvin R. Johnston

IMPACT OF TELEPHONE COMMUNICATION ON THE ECONOMIES OF THE VARIOUS GEOGRAPHIC REGIONS OF THE U.S.: PART V. 23
By Alexander I. Warrington

WHAT IS YOUR JOB OBJECTIVE? 26
By Gilbert R. Brackett

THE PLANT MAN'S NOTEBOOK 28
By Ray Blain

TAXES TAKE $3 OF EVERY $10 PAID FOR SERVICE, ILLINOIS BELL FINDS 29

REA APPROVES TEN LOANS 31

HELICOPTER USED IN SURVEY OF DEW LINE EXTENSION 32

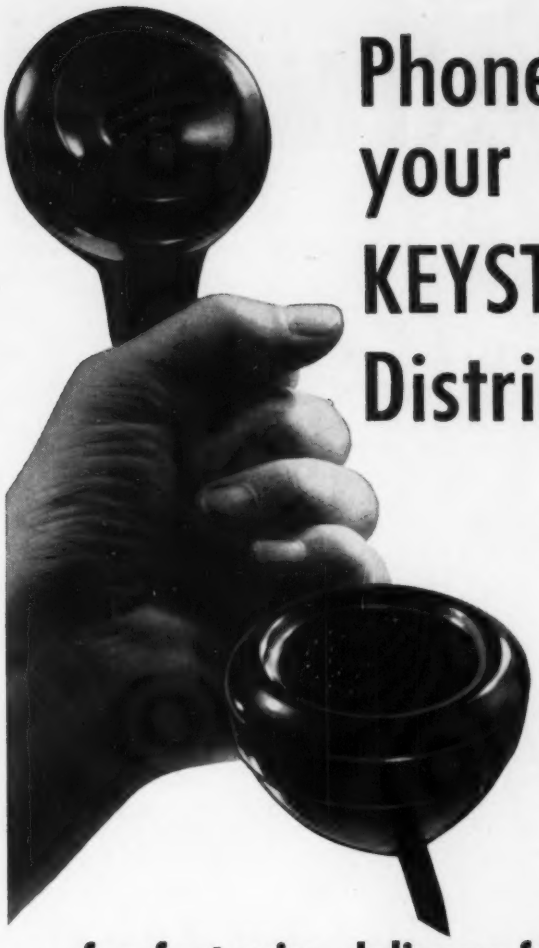
COURTS AND COMMISSIONS 34

NEWS ON NEW PRODUCTS 40

H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • HAROLD B. McKAY, *Electronics Editor* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager.*

VAC **Circulation Audited and Verified (direct from auditor to subscriber) By Verified Audit Circulation Co.**

Published every week on Saturday by TELEPHONY PUBLISHING CORP., 608 S. Dearborn St., Chicago 5, Ill. Entered as second class matter at the Post Office at Chicago, Ill., under the act of Mar. 3, 1879. 30c per copy (except special issues—50c). Subscription $4.50, 1-year; $7.00, 2-years; $9.00, 3-years. Add $1.00 per year for postage to Canada and Pan American countries; $2.00 per year to Foreign countries. Telephone WAbash 2-2435.



Phone your KEYSTONE Distributor

British Ropes Canadian Fast., Ltd.
Vancouver, B. C., Canada

Crescent Electric Supply Company
Dubuque, Iowa
Burlington, Iowa
Cedar Rapids, Iowa
Davenport, Iowa
Madison, Wisconsin
Mason City, Iowa
Ottumwa, Iowa
Peoria, Illinois
Quincy, Illinois
Rapid City, South Dakota
Sioux City, Iowa
Sioux Falls, South Dakota
Spencer, Iowa
Sterling, Illinois
Waterloo, Iowa

Dakota Electric Supply Co.
Fargo, North Dakota

Joslyn Mfg. and Supply Co.
Birmingham, Alabama
Chicago, Illinois
Dallas, Texas
New Orleans, Louisiana
New York, New York
No. Kansas City, Missouri
Oklahoma City, Oklahoma
Omaha, Nebraska
St. Paul, Minnesota

Kingsport Electric Co., Inc.
Kingsport, Tennessee

Line Material Industries
Milwaukee 1, Wisconsin

Marshall-Wells Canadian Companies, Ltd.
Winnipeg, Manitoba, Canada

The Mine & Smelter Supply Co.
Salt Lake City, Utah

Nelson Electric Supply Co.
Dallas, Texas
Lubbock, Texas

Jack Prutsan Co.
Seattle, Washington

Southern Electrical Corp.
Chattanooga, Tennessee

Suttle Equipment Company
Chicago, Illinois
Lawrenceville, Illinois

Tennessee Valley Electric Supply Co.
Nashville, Tennessee

Wheeler Lumber Bridge & Supply Co.
Norfolk, Nebraska

. . . for fast wire delivery from stock

When wire is needed, call your Keystone Wire Distributor. His stocks are well supplied. He can give you prompt delivery in any emergency.

Keystone Telephone Wire is available in a full range of Class A line wire in 50M, 85M, and 135M tensile strengths, and meets the specifications of A.S.T.M., A.T.&T. and is approved by R.E.A. Galvanized bond, tie and construction wire are also available at your Keystone Distributor.

A phone call will bring you fast delivery . . . contact your nearest Keystone Distributor for your next wire need!

KEYSTONE STEEL & WIRE COMPANY, Peoria 7, Illinois

KEYSTONE
Wire for the Telephone Industry

. . . by the makers of famous Red Brand Fence

Better in all ways..

BETTER TO LOOK AT! Choice of 15 attractive colors to match all decors, whether for home, school or business: red, yellow, green, blue, beige, grey, ivory, turquoise, rose pink, aqua blue, light beige, light grey, white, brown, black. Available in standard desk or the new, popular wall models.

BETTER TO LISTEN TO! Surpasses all previous instrument performances! Completely engineered to set a new standard of excellence for independent telephony. Varistors provide proper level of voice transmission; incorporate acoustic peak suppression.

BETTER TO TALK OVER! Speech quality is improved too: the shorter handset design extends the frequency bandwidth, sets a new high in transmitting and receiving performance. The transmitter is closer to user's mouth, gives a better signal-to-noise ratio.

the Kellogg K-500

BETTER INSIDE! Designed for top performance, using highest quality components throughout. Receiver, transmitter, ringer are new in principle, design and performance; the network is a compact, sealed housing. The single-lobed dial cam provides more uniform pulses; the new number plate makes for faster, surer dialing.

Kellogg's K-500 series is your best answer to assure subscriber satisfaction and long, reliable service. Ask your local Kellogg representative to explain the new monthly shipment plan for K-500s: it guarantees you a steady supply of these wanted telephones —at lowest unit cost.

KELLOGG
CHICAGO, ILLINOIS
Communications Division of ITT

Kellogg Switchboard and Supply Company, 6650 South Cicero Avenue, Chicago 38, Illinois
Communications Division of International Telephone and Telegraph Corporation.

Regional Offices and Warehouses:

CALIFORNIA: 23 Broderick Road, Burlingame, Calif., OXford 7-5780.
GEORGIA: 1594 Southland Circle, N.W., Atlanta 18, Ga., SYcamore 4-2441.
ILLINOIS: 4600 So. Tripp Ave., Chicago 32, Illinois, CLiffside 4-4300.
KANSAS: 7th & Sunshine Road, Kansas City 15, Kansas, MAyfair 1-4418.
MINNESOTA: 6100 Excelsior Blvd., Minneapolis 16, Minn., West 9-6715.
NEW YORK: 327 North West Street, Syracuse, N. Y., HArrison 2-9251.
OHIO: 1555 West Fourth Street, Mansfield, Ohio, LAfayette 4-6511.
TEXAS: 1515 Turtle Creek Blvd., Dallas 7, Texas, RIverside 7-5191.
EXPORT: 157 Prospect Street, Passaic, N. J., PRescott 3-5100.

PHILCO
MICROWAVE SYSTEMS

. . . provide top quality reproduction of relayed video signals . . . at low cost!

PHILCO MICROWAVE SYSTEMS provide true fidelity point-to-point relay of "off-the air" television programs over short or long hauls, at minimum cost.

Stable, broadband transmission makes Philco Systems equally applicable to Community TV and S-T-L relay of NTSC compatible color or monochrome signals, including audio program channel.

With 1 full watt output, built-in metering and test circuits, fully automatic standby . . . Philco Microwave Systems *assure* dependable, unattended, continuous operation.

PHILCO TLR-6 TRANSMITTER

- Operates in 5900 mc to 7125 mc bands
- Highly reliable, unattended operation
- Simplified maintenance
- NTSC compatible color or monochrome
- 1 full watt output
- Full 15 KC audio channel multiplexing
- Automatic standby
- Built-in metering and test circuits

• PLUS PHILCO'S COMPLETE TURNKEY SERVICES:
Site Survey • System Planning • Installation • Field Service

PHILCO QUALITY FIRST!

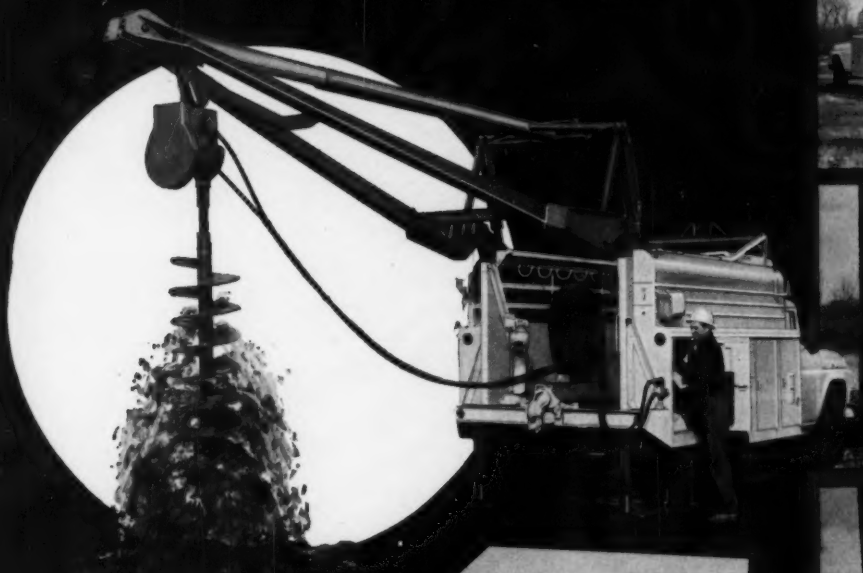
Write today for catalog sheets describing Philco TLR equipment

Government & Industrial Division, 4718 Wissahickon Ave., Philadelphia 44, Pa.
In Canada: Philco Corporation of Canada Limited, Don Mills, Ontario

NEW SERIES DF-1

"Earth-Master"

PORTABLE
HYDRAULIC HOLE DIGGER



PRICED TO FIT THE MOST MODEST BUDGET

This new Series DF-1 "Earth-Master" digs straight, clean holes—up to 20" in diameter and 10' in depth—in practically any type of soil. It digs close to poles, fences and buildings, reaches areas inaccessible to "fixed position" units, swings out of the way to permit unrestricted use of the derrick and can be easily transferred to another vehicle.

Like all portable diggers in the "Earth-Master" line, the DF-1 is designed for use with a "live boom" hydraulic derrick, such as the Series PM-1 "Pole-Master" shown. Down pressure which can be applied with the derrick teams up with natural feed of the auger to facilitate digging in extremely hard soil.

The DF-1 is powered by a hydraulic pump driven by the truck engine. Rotation is accomplished by a reversible hydraulic motor through a chain and sprocket assembly. Control lever, installed next to derrick controls in right rear compartment of body, is available with built-in engine speed regulator.

Standard full-flight auger, with Pengo head having replaceable points, can be furnished in sizes from 9" to 20" in diameter.

Complete details and prices are yours for the asking!

McCABE-POWERS BODY COMPANY

5900 NORTH BROADWAY · ST. LOUIS 15, MISSOURI

625 CEDAR STREET
BERKELEY 10, CALIF.

5525 S. E. 28TH AVE.
PORTLAND 2, OREGON

Another reason why...
UTILITIES EXPECT MORE FROM

POWERS *American*

UTILITY BODIES AND EQUIPMENT

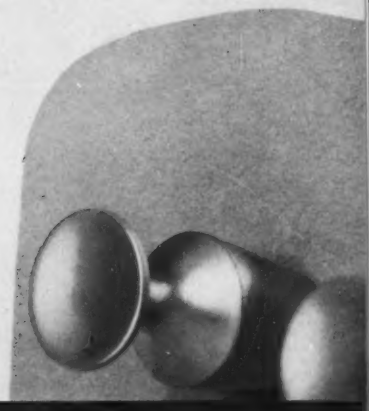
SERIES EM-1 "Earth-Master" digs holes from 9" to 20" in diameter, as deep as 9'4" vertically or at various angles. Auger is guided at all times ... feeds and rotates under power.

SERIES EM-2 "Earth-Master" handles the work of a "fixed position" boring machine. Guided auger feeds and rotates under power, digs straight clean holes up to 30" in diameter ... up to 10'6" deep, vertically or at angles.

Save time and money ... let our sales and engineering staff analyze all your truck body and equipment needs.

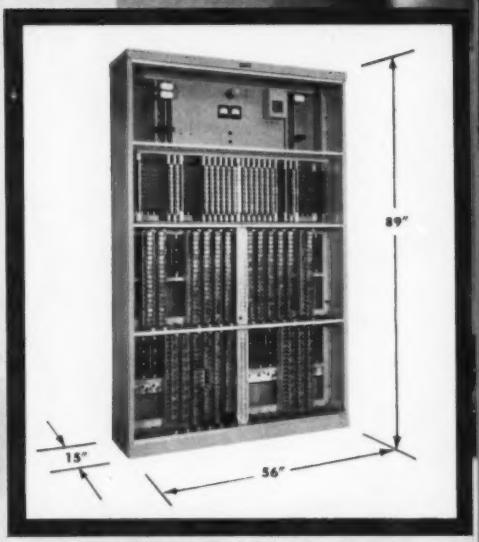
Show How to Extend Calls

with LEICH's Exclusive Keyset Turret



When you show a PABX prospect how to operate Leich's keyset turret, you've shown him how to keep his business humming. Incoming calls from his customers are handled faster than ever before. By simply depressing two or three keyset buttons in sequence, the turret attendant extends incoming calls quickly and easily.

In addition—inside, outgoing, and even consultation calls—are made without help from the turret attendant. Inside parties simply dial the number. Standard Leich dial telephones without special buttons or equipment are used.



All-Relay Leich Dial Switching Equipment Furnished with Leich 88A PABX.

Leich's keyset turret almost sells itself when you show it to subscribers. Why not order one today to use as a demonstration model.

LEICH

Subsidiary of GENERAL TELEPHONE & ELECTRONICS

Quickly

How to Sell Your LEICH PABX Prospects

Modern Keyset turrets are furnished with Leich's 88A, 40A and 100T PABX Systems.

LEICH SALES CORPORATION • 427 WEST RANDOLPH STREET • CHICAGO 6, ILLINOIS

PACIFIC COAST: 11401 W. PICO BLVD., LOS ANGELES 64, CAL.
EAST: 3651 CONNECTICUT AVENUE, YOUNGSTOWN, OHIO
SOUTHWEST: 1227 SLOCUM STREET, DALLAS 7, TEXAS
SOUTHEAST: 5126 SOUTH LOIS ST., TAMPA 11, FLORIDA

manufacturers of telephones, switchboards and related apparatus since 1907

LEE
TELEPHONE
CO.

YOU START SAVING AS SOON AS YOU START INSTALLING

COLOR-CODED ANACONDA ALPETH

The easier and faster you make a lineman's job, the more time and money you save on installation, service and maintenance. This was part of the thinking behind the development of Anaconda Alpeth telephone cable.

Test splicing is costly and time-consuming, and installation test pinholes in polyethylene are almost certain to produce failure in time. Such failures mean costly maintenance.

But—new color-coded Anaconda Alpeth eliminates test splicing and broken insulation, maintaining complete moisture protection, saving installation time and labor.

You get long-range operating advantages too

Every time you add a new station, you get every installation advantage over and over again.

It's versatile. Install Anaconda Alpeth aerially with a messenger, or in underground ducts. It's ideal for rural, suburban, and urban telephone plants.

The longitudinally applied aluminum shield offers you all these extras—a virtually noise-free plastic cable . . . an excellent path to ground for induced lightning and power surges . . . an effective shield from outside interference . . . low electrical resistance . . . provides a shield with electrical characteristics which are virtually unchanged with time.

The high molecular-weight polyethylene jacket gives outstanding aging and weathering characteristics in addition to high moisture- and corrosion-resistance.

These then are some of the reasons why you start saving—and keep saving—as soon as you start installing lightweight Anaconda Alpeth. For more information and full technical data, write to: Anaconda Wire & Cable Company, 25 Broadway, New York, N. Y.

59223

ASK THE MAN FROM

ANACONDA®

FOR ANACONDA ALPETH
COLOR-CODED TELEPHONE CABLE

Anaconda Wire & Cable Company—the independent manufacturer for the independent telephone industry

Here's selling with a smile!

This young lady appears in a current Long Distance ad. "I feel wonderful," she says, "because I just called the folks Long Distance."

The ad tells millions of magazine readers that they'll feel wonderful, too, if they keep in regular touch by telephone with their families out of town.

It's appropriate that a telephone service which brings so much happiness to people should be sold with a smile. Furthermore, Long Distance usage is increasing steadily. That's something every telephone company can smile about.

BELL TELEPHONE SYSTEM

SO THAT WORDS WON'T FAIL

Every telephone man knows the heavy responsibility placed on batteries for maintaining uninterrupted service. This is particularly true in the case of ac power failure, when standby batteries must carry the full load.

To make the best possible investment in batteries, specify C & D. For lead-antimony batteries with a 14-year life—get C & D PlasticCell. If you need a premium battery—install C & D PlastiCal.® It's a lead-calcium grid battery that will last for 25 years in full-float service. Both PlastiCell and PlastiCal batteries feature full .266″ thick positive plates—triple insulation—clear plastic containers. These features plus many more—make C & D your best battery buy.

If you don't have complete, up-to-date literature, it will pay you to write for Bulletins T-532 and T-533.

A typical installation of C & D batteries—neat, compact, dependable.

C&D

Since 1906

C&D BATTERIES, INC.

of Conshohocken, Pa. ... Attica, Ind.

Sales and Service Offices in Principal Cities from Coast to Coast

Manufacturers of Sure-Cel ® Industrial Batteries • PLASTICELL and PLASICON ® Batteries for Communications, Control and Auxiliary Power • Producers of Autolay * Silicon Chargers

*Trademark

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR
AND EDITOR, PUBLIC UTILITIES FORTNIGHTLY

Interstate toll rate reductions to be effected by AT&T's Long Lines appear to apply to calls over 675 miles, not 300 as previously reported. House subcommittee shifts investigative spotlight from FCC to phony TV quiz shows. New law puts TVA on its own feet for further financing and calls for repayment of 1.2 billion dollars with interest at rate Treasury pays. Labor union reforms get boost from Ike TV address and response from public.

AT THE TIME this department was prepared in Washington last week it was assumed that the 50-million-dollar rate reduction ordered by the Federal Communications Commission, for the Long Lines Department of the American Telephone & Telegraph Co., would apply only to interstate long-distance calls in excess of 300 miles. Since then the AT&T has filed actual schedules in which the reduction appears to apply, for the most part, to calls in excess of 675 miles. This change from the original announcement would seem to be for the better.

By applying the reduction chiefly to the longer haul toll calls in excess of 675 miles, the resulting disparity between interstate and intrastate tolls is not so apparent. There are only 10 states in which it is possible to place an intrastate long-distance toll call in excess of 675 miles. Therefore, the basis for invidious comparison between the interstate and intrastate level of long-distance rates is virtually removed.

This, in turn, eases the pressure to some extent on the operating companies for state regulatory commissions who are confronted with the necessity of increasing telephone rates rather than reducing them on the basis of intrastate operating costs.

In its effort to comply with an order from the FCC to reduce income by 50 million dollars, AT&T has filed tariffs to reduce income by about 47 million dollars, with an additional 3-million-dollar reduction to be announced later. Such cuts will vary from five cents to 25 cents on basic three-minute station-to-station calls. New York to Atlanta or New York to Chicago calls, for instance, when placed station to station for a three-minute period during the daytime, will be reduced from $1.50 to $1.45. The same type of call from New York to Los Angeles would cost $2.25, compared with the previous $2.50.

The reductions apply to day, night, and Sunday rates and cover the first three minutes as well as additional minutes on station-to-station calls. Only the additional minutes, beyond the initial three-minute period, will receive reductions on person-to-person calls.

The commission has waived the normal 30-day notice period before such rate changes can be put into effect. This will enable the reductions to take place by mid-September as ordered by the original FCC directive. The 3 million dollars in rate reductions still to be made, will in all probability involve rate reductions on the initial period for person-to-person calls and may also affect calls in the 300 to 675-mile long-distance call range. What may be done about the division of toll compensation on calls terminated or originating over non-Bell company facilities still remains to be decided.

Quizzing the Quizzers on TV

The House Subcommittee on Legislative Oversight is probably moving into a field of legitimate interest to the American people when it takes up the subject of phony quiz shows shown on television. But by the same token the subcommittee would seem to be moving away from, or perhaps has run out of, work to do in the strictly regulatory field of federal commission operation.

The FCC, for one, would probably be the last to complain about this. The commission has had more than its share of X-ray examination and headlines as a result of the subcommittee's investigations. But the other federal commissions—the Federal Power Commission and the Interstate Commerce Commission, to name two—have gotten off fairly lightly. The House group did give the Civil Aeronautics Board and the Securities & Exchange Commission a light going over; but most of its time during the past two years has been spent on the FCC.

A more cynical explanation might be that the subcommittee has run out of "pay dirt" in the regulatory field. And with the elections coming up next year, an investigation bound to attract widespread public interest would not do any harm to the political allure of the congressional investigators. You do not have to take such a callous view, of course; but there are those in Washington who do.

Be that as it may, there is little doubt that the millions of television fans all over the country will follow, with interest, what the House investigators turn up concerning the validity of those agonizing, but eventually correct, answers to the most difficult questions given by eye-rolling attractive

young women to the TV quiz masters.

It has always been a mystery to this reporter how these whistle-bait dolls ever mastered the nuances of Byzantine history or the quantum theory. Maybe the House probers will turn up some explanation. Anyway it ought to be a good show and get the FCC off the hot spot for awhile.

Early this month the subcommittee asked, and received, from a New York court, permission to use the minutes of a grand jury in New York county which exhaustively investigated the honesty of certain TV quiz shows. The public in general and at least two federal agencies (the FCC and the Federal Trade Commission) are slightly curious about the whole question of possible frauds on the airwaves, and the grand jury's efforts should give the subcommittee a good lead in discovering the facts.

Oddly enough the quiz shows seem to have lost their flavor, if not their public, after the "scandal" reports broke out. Most of them are now off the air. But the possibility that a revival of the suspected practices might come in time, as well as the danger that similar practices in a different guise might occur, makes it arguable that Congress should be enlightened on the past, with an eye toward remedial legislation.

As a matter of law, as well as because of the limited number of channels available, television and radio broadcasting are required to be in the public interest. A condition of such broadcasting should certainly be that it be free from fraud, whether this constitutes an offense under existing law or whether it is what the New York assistant district attorney, speaking on the grand jury discoveries, described as a "tawdry hoax on the American public."

TVA Financing Bill

The telephone companies generally should have at least a passing interest in the bill signed into law last week governing self-financing by the Tennessee Valley Authority. There are two reasons: (1) The law establishes a pattern looking towards self-sufficiency and less subsidy for the largest and most controversial public utility operation in which the federal government has become directly engaged. (2) The law may remove from the 1960 presidential campaign a rather sticky issue of public *versus* private ownership which could degenerate into a more virulent anti-utility form of agitation. This could have unfortunate consequences for all regulated enterprise in the event of a Democratic landslide.

Note well, however, the second proposition is by no means certain. The so-called public power bloc, in league with some labor union elements and extreme liberals, may fasten upon the Democratic party platform planks giving rise to critical campaign oratory against the utilities next year—regardless of what happens to TVA. But in any event, the termination of the long squabble between the President and some Congressmen in the TVA area over the expansion of the authority's operations should "ease the tension," as they say nowadays about almost all political fires which continue to smolder.

The major objective of the new law was to take TVA off the taxpayer's back. It was hopeless to suppose, at this late date, that Uncle Sam would ever get back, with or without interest, all the money that was put into the creation of power-producing facilities for the benefit of the Tennessee Valley area.

Realistic administration advisers figured, however, that a start could be made by putting the TVA on its own feet as far as further financing was concerned. Hence the provision of the bill which authorizes TVA to issue up to 750 million dollars in bonds for plant expansion.

Legally, these bonds will not be obligations of the federal government. They will not be backed by the federal taxpayer. They will be revenue bonds, which means that they will be sold on their own credit, with interest to be paid out of TVA's own earnings for electric power operations.

To that extent, the law is a good one. Thanks to the demand for power of the Atomic Energy Commission in the TVA area, as well as the growing power demands of the Tennessee Valley cities served by TVA, the new generating plant facilities are admittedly needed. But Congress, for several years, has been leery about letting TVA go ahead with an unlimited plant expansion program as long as the United States Treasury was obligated to pick up the tab. And so TVA has been limping along for several years on a sort of gentleman's agreement with Congress to use only its own surplus revenues for plant expansion.

President Eisenhower tried to get the TVA off the hook early in his administration by filtering investor-owned company operations back into the Tennessee Valley via the ill-fated Dixon-Yates contract. But the public ownership boys screamed "fraud" so loud and so long that he was glad to let go of it, when the city of Memphis decided to build its own power plant. (The U. S. court of claims later held that there was no fraud; and that Uncle Sam has to pay damages for breaking his contract with Dixon-Yates.)

The TVA self-financing arrangement is thought to be the next best thing. But it must not be supposed that these bonds are to be sold to the public. Under the new law, the Treasury has to buy them. So, actually, the fact that these bonds are not part of the public debt obligation of the government is rather academic. While it is true that Uncle Sam does not have to back them up at the issuing end, he still has to take all the risk at the buying end—if TVA fails to earn enough revenues to pay off the interest. That would probably not happen as long as the federal government is in a position of working both ends of the deal.

Even so, President Eisenhower threatened to veto the bill at the last minute. He did not think the bill provided enough budgetary controls for the White House over TVA expansion. To remove this objection, Congress obligingly amended the act to eliminate the 90-day veto provision on TVA expansion. This, in the minds of some people, makes TVA subject to administration budget controls just like any other federal agency.

But this correspondent reads the law differently. Far down on the sixth page of the bill as it passed Congress (H. R. 3460), there is the following obscure sentence:

"The issuance and sale of bonds by the corporation and the expenditure of bond proceeds for the purposes specified herein, including the addition of

(Please turn to page 72)

Amigo Service

Spanish-speaking visitors to Chicago during the Pan American games won't have any trouble if they try to call home or seek local information.

The alert public relations department of the Illinois Bell Telephone Co. made sure that "Amigo Service" has been provided. (Amigo means "friend" in Spanish.)

Between Aug. 16 and Sept. 12, these visitors will be able to dial the operator and ask for "Amigo Service."

A bank of Spanish-speaking telephone operators will be standing by at the special service to answer questions and aid the visitors in making calls. Illinois Bell is distributing cards and posters printed in Spanish telling visitors how to "Dial O for Amigo!"

Formulating

Banded Local Service Rates

By MARVIN R. JOHNSTON*

THERE are two fundamental differences between the telephone business and the usual commercial or industrial enterprise.

One of these differences is that telephone companies are natural monopolies. As such, they are obligated to make telephone service available to virtually all applicants in the area they serve. They are also regulated as to prices and profits by public authority.

The other difference arises from the fact that the very essence of telephone service is intercommunication with other telephones.

All businesses attempt to price their products so that the total income from the sale of its goods or services is adequate to pay all required expenses and provide a satisfactory return to its investors. Failing to do this, the business cannot long survive.

The telephone industry is no exception in that respect. The principle requirement of telephone rate schedules is to produce revenues sufficient to cover the total cost of providing good service to customers, permit fair treatment of employes, and guarantee to those who have invested their capital an adequate and stable return which will continue to encourage them and others to provide the increasing capital requirements for the growth and improvement of telephone service.

Since we are a regulated utility, rate schedules must be established to produce only adequate earnings rather than the maximum or most favorable profits.

One telephone alone has no value for intercommunicating. Value is gained only as others are connected with the system. As a result, each customer's service is affected by the amount, quality, and type of service furnished to others. The interest of the public makes it necessary that each rate and service offering be viewed not only from the standpoint of the subscriber purchasing the service, but also from the effect of his choice of service on the services of others. This makes the whole pricing structure for telephone service infinitely more complicated than the ordinary pricing of durable merchandise.

Eight Principles

The best selection of a rate system requires careful consideration of the following principles and objectives recognized as essential in good rate-making:

(1) *To obtain adequate and stable revenues.* This is a prime requisite; however, suitable rate levels alone do not ensure adequate and stable revenues. The rate schedules must also provide attractive service offerings and rate treatment which will encourage the sale of services on a continuing basis.

(2) *To encourage maximum development.* Telephone rates are designed to encourage connection to the telephone system and to make service readily available to all desiring service. Maximum development is of paramount importance not only to the company, but even more important to its subscribers because the value of the service and usefulness of service depends upon the number of other telephones that can be reached.

(3) *To permit maximum practicable use of service.* Rates should be designed to promote customer use of the service since the telephone has no value except as it is used to make and receive calls.

(4) *To permit economical operations.* Rate schedules should permit taking full advantage of improvements in the art so as to reduce cost wherever possible. Properly adjusted rate differentials further economic operations by giving the subscriber the desire for the types of service whose cost is not out of proportion to its value.

(5) *To permit high quality of service.* Rates must be established at levels which make it possible to provide a satisfactory quality of service including adequate facilities, prompt operating, essential supplemental services, etc. Rate schedules which are properly adjusted encourage subscribers to purchase the better grades of service and supplemental equipments such as extensions, colored hand sets, etc.

(6) *To have rate schedules that are easy to administer.* Rate schedules should be established that are easily understood by the public and easy for the company employe to administer correctly and impartially.

(7) *To meet special requirements.* This objective contemplates meeting the needs of those subscribers having special service features at rates which preclude burdening the whole subscriber family.

(8) *To result in fair distribution of charges.* The measure of proper distribution of cost is not that each class of service will pay charges in exact proportion to allocated charges, but rather the costs should be apportioned so that all will benefit from the development and use of the service.

Banding Follows Principles

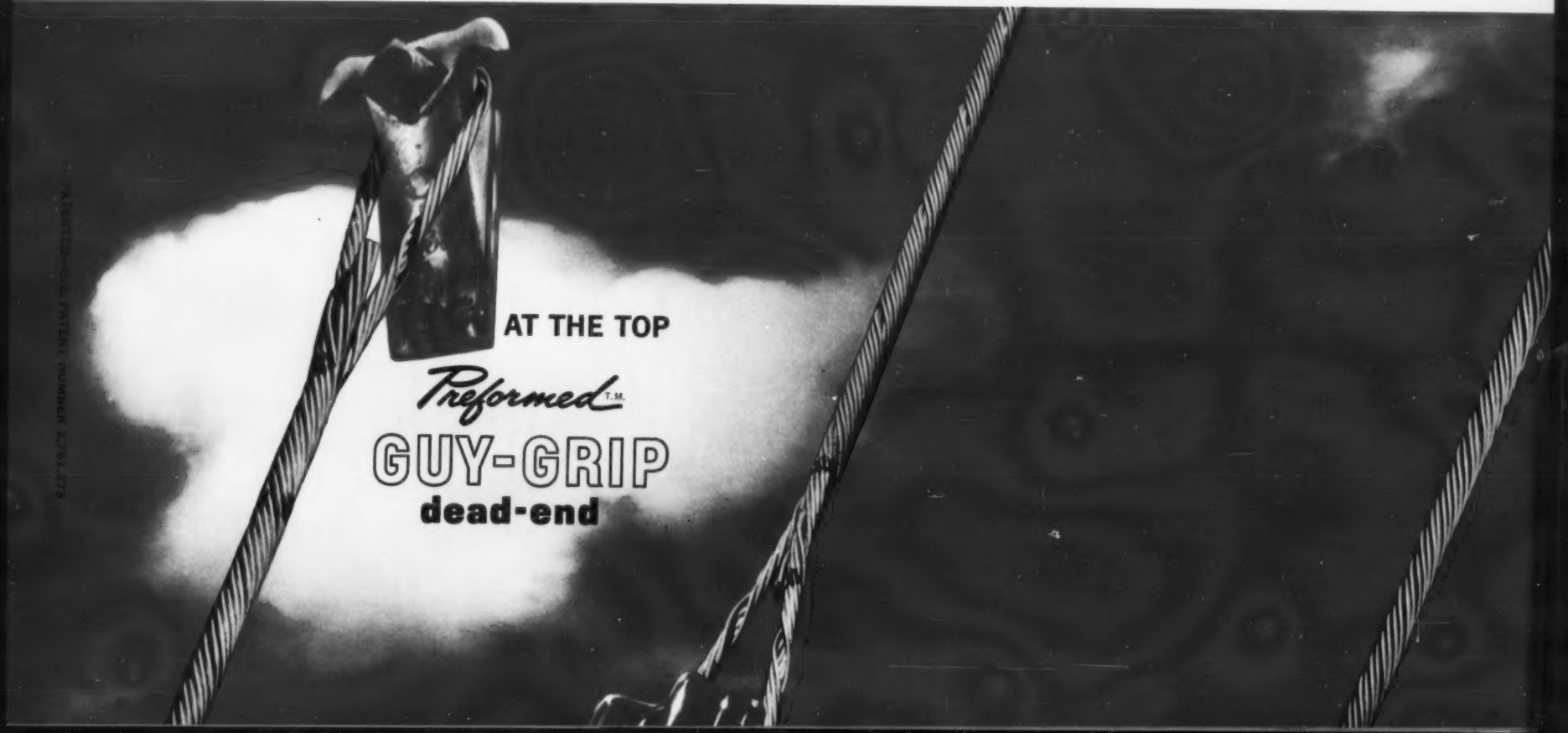
The state-wide, or company-wide principle, more commonly referred to as "banding," makes the attainment of these objectives both practical and possible.

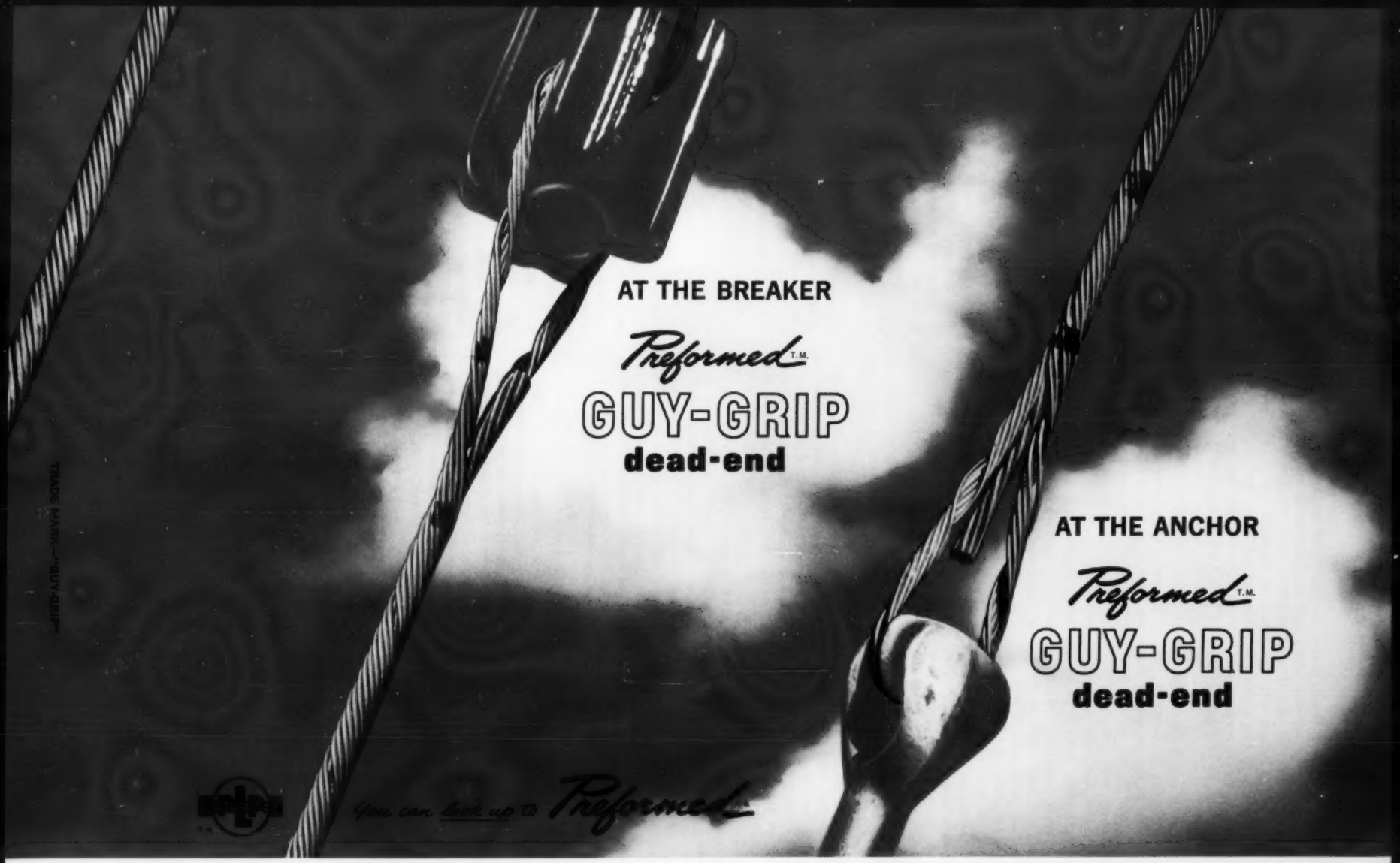
The state-wide basis provides that the total costs of furnishing telephone service and resulting revenue requirements are considered by the company as a unit, recognizing that telephone service, both local and long distance, is essentially an integrated whole, with all portions being interdependent.

(Please turn to page 22)

*Mr. Johnston is General Commercial Manager of the General Telephone Co. of Ohio, Marion, O.

For the most DEPENDABLE GUY





Write for the Preformed
Booklet-of-the-Month
"THE GOOD GUY"

PREFORMED LINE PRODUCTS CO.
DEPT. GG 2
5349 St. Clair Avenue · Cleveland 3, Ohio

The objective is to apply throughout the company a properly balanced and well coordinated pattern of rate treatment providing rates which are uniform under substantially like conditions and producing, in the aggregate, adequate earnings on the company's operations.

The basic advantage of the company-wide system is that it provides the greatest latitude in the design of rate schedules required to secure the overall revenue needs, and also to realize to the maximum the rate objectives previously mentioned.

As an example, separate consideration of local and long distance operations in certain companies, might result in lower toll rates and higher local service rates. If this resulted in lower telephone development, long distance users, as well as local subscribers, would be unable to reach persons whom they desired to call. Accordingly, long distance users, as well as local exchange subscribers, benefit from rate schedules designed to encourage maximum development.

The fundamental basis for company-wide exchange rate schedules is the arranging and grouping of exchanges by the number of telephones available in the local calling area, at local rates. Company-wide schedules provide uniform classes of service and rates which apply to all of the exchanges in each group, with rate levels increasing with the number of telephones in the local calling area. This rate system recognizes that the value of the local service increases with the scope of the service available and that, generally, value to the customers and the cost to the company are highest in the largest exchanges.

More Subscribers, More Usage

The value of exchange service depends to a great extent on the number of other individuals with whom a subscriber can communicate without the payment of message toll charges. The more people he can call without paying a toll charge the more the subscriber uses the telephone. Because exchange telephone service is more valuable to customers with larger local service areas, they are willing to pay more for the service. Since their average income is generally greater, they are better able to pay more. This permits lower rates in small towns and rural areas where average incomes are generally lower and, as a result, lower rates tend to stimulate telephone development in these areas.

The state-wide principle of rate-making precludes basing exchange rates on any estimated costs of furnishing service in specific exchanges. Such estimates would require detailed, costly, and time-consuming studies, the results of which would be largely hypothetical and of doubtful value. Furthermore, they would serve no useful purpose since relative value of service, rather than individual exchange costs, is the controlling factor in the development of satisfactory schedules.

To attain the objectives of the banding basis of rate-making, a satisfactory grouping of exchanges for the application of uniform rates is of extreme importance.

The most widely accepted basis for grouping exchanges is by the number of telephones in the local calling area.

The number of telephones available at local service rates is definitely a good criterion of the scope of the local exchange service and its value to subscribers.

Simple Method

This is a very simple method of grouping and is one that is easily understood by the subscribers.

This principle requires that an exchange in which extended area service is furnished be grouped according to the total number of stations in the calling area; not of the exchange itself, but of its local service calling area.

This treatment results in a fair distribution of charges since the total number of telephones available at local service rates is the best measurement of value of service to the subscribers. It also ensures that, where several exchanges have a common local service area, similar rates apply to similar services.

If the additional exchanges in the extended area are all small, the differential in rate level is also small. In some cases extended area service may not even cause the exchanges to move into a higher rate-band.

When extended area service is established between a small exchange and a city having a considerably larger calling area, the small exchange will move into a rate-band where the rates are substantially higher than those for the small exchange alone. These higher rates are fully justified by the greatly increased calling area of the larger exchange. If a rate adjustment is not made, the enlargement of the calling area would not be warranted. Any lower rate-band would certainly be inconsistent and unfair. Thus, it would be unjust to subscribers in the larger area, to furnish the same service to subscribers in the smaller exchange at a lesser rate. Rates based on telephones in the exchange rather than local service area would make customers' charges for similar services depend on the size of the exchange which might seem arbitrary to the subscriber.

Example Cited

As an example, if a nearby community were included in a city exchange, the city rates would apply. If, however, the rates for the community were as a separate exchange, rates would be appreciably lower for the same service. This method of grouping would also lead to inconsistencies with both base rate and toll rates principles. For instance, as a general rule, all exchanges have a base rate area covering the built-up section, with mileage charges, being applied to graded services in outlying areas, increasing up to the exchange boundary. If service to the larger exchange were furnished at a lower rate than in the nearby exchanges, rates for the same service area would drop considerably upon crossing the boundary. Situations might even develop where customers near the border could get their own exchange service at less cost by subscribing to foreign exchange service from the nearby smaller exchange.

In the development of rate-bands, the number of bands and the size of each band varies with conditions in each company. The general objective is to establish groupings with enough bands to permit a reasonable spread of rates within the company, with moderate increases in rate levels in going from any one band to the next higher. Care should be taken to avoid creating so many bands as to result in insignifi-

(Please turn to page 65)

Freedom's Moral Basis

"Men are qualified for civil liberty in exact proportion to their disposition to put chains upon their own appetites; in proportion as their love of justice is above their rapacity; in proportion as their soundness and sobriety of understanding is above their vanity and presumption; in proportion as they are more disposed to listen to the counsels of the wise and good, in preference to the flattery of knaves.

"Society cannot exist unless a controlling power upon the will and appetite is placed somewhere; and the less of it there is within, the more there must be of it without.

"It is ordained in the eternal constitution of things, that men of intemperate habits cannot be free. Their passions forge their fetters."—EDMUND BURKE.

Impact of Telephone Communication

On the Economies of the Various Geographic Regions of the U. S.

By ALEXANDER I. WARRINGTON

PART V. Region 5. The Southeast — Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Mississippi, Louisiana and Arkansas.

The Southeast

THE per capita income in 1956 was 1,368 dollars, which was below the national average, and in 1939 it was 319 dollars, an increase of 328.8 per cent. Population, in millions, was 35.5 in 1956, and 30.1 in 1939, or an increase of 17.6 per cent. There were, in millions, 9.7 households in 1956 and 7.2 in 1939, a 33.0 per cent increase.

There were, in millions, 8.6 telephones, with 29.1 per cent for business in 1956, and 2.1, with 36.2 per cent for business in 1939. The increase in total telephones was 300.4 per cent.

In 1939, there were 22.3 thousand manufacturing plants and in 1900, 27.5 thousand. Employment, in thousands, was as follows: 1956, 2,593.0; 1939, 1,445.2; 1900, 631.5. Payrolls, in millions of dollars, were: 1956, 8,894.0; 1939, 1,318.2; 1900, 203.7. Value added by manufacturing, also in millions of dollars: 1956, 18,350.0; 1939, 2,786.2; 1900, 428.9.

In 1958, there were, in thousands, 9,411.8 telephones, with 2,705.3 for business and 6,706.5 for homes.

The personal income for 1957 was 53,088 million dollars.

Employment followed the pattern in 1958, with states shown having the highest statewide concentration in the type of industry shown:

Type of Employment	*State with Highest Statewide Percentage of Employment*
Mining	West Virginia
Contract construction	Florida
Manufacturing	North Carolina
Transportation and other public utilities	Louisiana
Trade	Florida
Finance, insurance and real estate	Florida
Service and misc.	Florida
Government	Mississippi

Virginia

The per capita income in 1956 was 1,647 dollars and in 1939 it was 422 dollars, or an increase of 290.2 per cent. The estimated population, in millions, was 3.5 in 1956 and 2.6 in 1939, or an increase of 33.6 per cent. Households for this population, also in millions, were 0.9 in 1956 and 0.6 in 1939, which indicates a faster increase than population or a gain of 50.4 per cent.

Telephones, in millions, in 1956, 1.0 and in 1939, 0.2, which represented a gain of 287.1 per cent. Business telephones in 1956 accounted for 29.2 per cent of the total and 31.0 per cent in 1939.

There were, in thousands, 2.4 manufacturing establishments in 1939 and 3.1 in 1900. Employment, also in thousands, was 255.0 in 1956, 150.2 in 1939, and 70.0 in 1900. (a) Payrolls and (b) value added by manufacturing, both expressed in millions of dollars, were (a) 1956, 889.0; 1939, 150.3; and 1900, 23.9, and (b) 1956, 1,897.0; 1939, 376.2; and 1900, 49.2.

Telephones, in thousands, in 1958 numbered 1,114.1, with 323.5 for business and 790.6 for residence use.

The personal income in 1957 was 6,302 million dollars.

Employment distribution in 1958 was as follows (1958):

Type of Employment	*Percentage Distribution*
Total employment	100.0
Mining	1.9
Contract construction	7.1
Manufacturing	29.5
Transportation and other public utilities	9.2
Trade	23.2
Finance, insurance and real estate	4.2
Service and misc.	11.2
Government	13.7

West Virginia

The per capita income in 1956 was 1,420 dollars, and in 1939 it was 387 dollars, an increase of 266.9 per cent. The estimated population, in millions, in 1956 was 2.0 and in 1939, 1.9, and this was a gain of 5.2 per cent. Households, in millions, were 0.5 in 1956 and 0.4 in 1939, with a gain of 17.0 per cent.

Telephones in 1956 numbered 0.4 million, with 25.2 per cent for business and in 1939, 0.1 million, with 32.5 per cent for business. The gain was 170.8 per cent.

There were 1.0 thousand manufacturing establishments in 1939 and 1.8 thousand in 1900. Employment, also in thousands, was as follows: 132.0 in 1956; 87.7 in 1939; and 34.8 in 1900. Manufacturing payrolls in millions of dollars ran: 588.0 in 1956; 113.6 in 1939; and 14.1 in 1900. Value added by manufacturing, also in millions of dollars, as follows: 1,207.0 in 1956, 213.2 in 1939, and 29.7 in 1900.

Telephones numbered 478.6 thousand

in 1958, with 120.2 thousand for business and 358.4 thousand for residence use.

The personal income in 1957 was 3,071 million dollars.

Below is shown the pattern of employment for 1958:

Type of Employment	*Percentage Distribution*
Total employment	100.0
Mining	16.2
Contract construction	5.6
Manufacturing	25.7
Transportation and other public utilities	10.3
Trade	18.2
Finance, insurance and real estate	2.5
Service and misc.	9.3
Government	12.2

Kentucky

The per capita income in 1956 was 1,324 dollars and in 1939 it was 303 dollars, an increase of 336.9 per cent. Population and households, both expressed in thousands, were as follows: Population in 1956, 3.0 and in 1939, 2.8, an increase of 5.5 per cent; households in 1956 were 0.8 in 1939, 0.7, an increase of 16.0 per cent.

Telephones, in millions, were 0.6 in 1956 with 26.0 per cent for business and 0.2 in 1939, with 29.1 per cent for business; the increase in totals was 193.7 per cent.

Number of manufacturing establishments and employment are in thousands and establishments in 1939 were 1.5 and in 1900, 3.6. Employment was as follows: 1956, 168.0; 1939, 76.5; and 1900, 56.0.

Payrolls and value added by manufacturing are in millions of dollars. Payrolls: 1956, 679.0; 1939, 89.0; and 1900, 22.6. Value added by manufacturing: 1956, 1,636.0; 1939, 186.4; and 1900, 59.1.

The state was served by 684.0 thousand telephones in 1958, with 175.2 thousand for business and 508.8 for residence use.

The personal income in 1957 was 4,172 million dollars.

Employment followed a pattern shown below in 1958:

Type of Employment	*Percentage Distribution*
Total employment	100.0
Mining	6.4
Contract construction	5.3
Manufacturing	26.5
Transportation and other public utilities	9.2
Trade	21.9
Finance, insurance and real estate	3.4
Service and misc.	11.1
Government	16.2

Tennessee

The per capita income in 1956 was 1,317 dollars and in 1939 it was 308 dollars, an increase of 327.5 per cent, which was much greater than the increase for the region. (a) Population and (b) households in millions were: (a) 1956, 3.4 and 1939, 2.9, an increase of 17.1 per cent, and (b) 1956, 0.9 and 1939, 0.7, an increase of 29.8 per cent.

Telephones, also in millions: 1956, 0.9 and 1939, 0.2 with business accounting for 26.4 per cent of all telephones in 1956, and 32.3 per cent in 1939. The percentage increase in totals was 251.8.

Expressed in thousands, there were 2.2 manufacturing establishments in 1939 and 3.1 in 1900. Employment was as noted: 288.0 in 1956; 152.1 in 1939; and 49.2 in 1900.

Expressed in millions of dollars, payrolls in 1956 were 1,046.0; 1939, 149.5; and 1900, 17.7. Value added by manufacturing: 1956, 1,986.0; 1939, 318.3; and 1900, 38.1.

In 1958, in thousands, there were 953.1 telephones, with 250.4 for business and 702.7 for home use.

The personal income in 1957 was 4,791 million dollars.

Employment in 1958 was as noted below:

Type of Employment	*Percentage Distribution*
Total employment	100.0
Mining	1.0
Contract construction	4.0
Manufacturing	34.2
Transportation and other public utilities	6.7
Trade	25.4
Finance, insurance and real estate	3.7
Service and misc.	10.6
Government	14.4

North Carolina

The per capita income in 1956 was 1,305 dollars and in 1939 it was 316 dollars, an increase of 312.9 per cent. Population and households, expressed in millions, were as noted: In 1956 population was 4.2 and in 1939 3.5, an increase of 19.9. Households in 1956 were 1.1 and in 1939, 0.7, an increase of 40.3 per cent.

Telephones, in millions, numbered 0.8 in 1956, with 28.7 per cent for business and 0.2 in 1939 with 36.8 for business. The increase in totals was 332.6 per cent.

Expressed in thousands, there were 3.1 manufacturing establishments in 1939 and 3.4 in 1900. Employment was as noted: 1956, 473.0; 1939, 293.2; and 1900, 75.2.

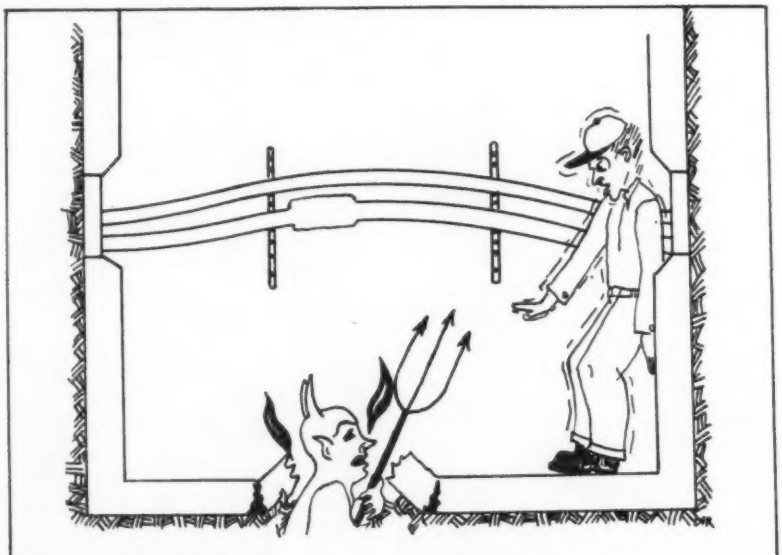
Expressed in millions of dollars, payrolls ran as follows: 1956, 1,448.0; 1939, 245.8; and 1900, 16.4. Value added by manufacturing: 1956, 2,742.0; 1939, 544.1; and 1900, 40.4.

There were in 1958, 947.8 thousand telephones, with 269.8 for business and 678.0 for home use.

The personal income in 1957 was 5,924 million dollars.

Employment in 1958 was as noted below:

Type of Employment	*Percentage Distribution*
Total employment	100.0
Mining	0.3



"I want to file a protest on the depth of this manhole."

Contract construction	5.5
Manufacturing	42.8
Transportation and other public utilities	5.6
Trade	20.8
Finance, insurance and real estate	3.2
Service and misc.	9.8
Government	12.0

South Carolina

In 1956, the per capita income was 1,133 dollars and in 1939 it was 273 dollars, an increase of 315.0 per cent. Expressed in millions, the population in 1956 was 2.2 and in 1939, 1.9, an increase of 20.1 per cent. There were 0.5 households in 1956 and 0.4 in 1939, an increase of 33.5 per cent.

Telephones, also in millions, numbered 0.4 in 1956, with 29.1 per cent for business, and in 1939 the percentage for business was 39.4. The increase in totals was 403.7 per cent.

In thousands, there were 1.3 manufacturing establishments in 1939 and about the same number in 1900. Employment was as follows: 1956, 225.0; 1939, 136.0; and 1900, 48.4.

In millions of dollars, payrolls were as follows: 711.0 in 1956; 103.1 in 1939; and 10.4 in 1900. Value added by manufacturing: 1956, 1,386.0; 1939, 169.2; and 1900, 22.8.

In 1958, telephone service was made up of 452.3 thousand telephones, with 128.1 thousand for business use and 324.2 for residence use.

The personal income in 1957 was 2,796 million dollars.

Employment was as noted below (1958):

Type of Employment	*Percentage Distribution*
Total employment	100.0
Mining	0.2
Contract construction	4.9
Manufacturing	42.5
Transportation and other public utilities	4.9
Trade	20.3
Finance, insurance and real estate	2.9
Service and misc.	8.2
Government	16.1

Georgia

In 1956, the per capita income was 1,400 dollars and in 1939 it was 310 dollars, an increase of 351.6 per cent. The population and households in millions were: 1956 population 3.6 and 3.1 for 1939, an upswing of 15.9 per cent. Households in 1956 numbered 0.9, and 0.7 in 1939, an increase of 29.0 per cent.

In 1956, there were 0.8 million telephones, with 30.1 per cent for business, and in 1939 there were 0.2 million with 37.9 per cent for business. The increase in totals was 306.6 per cent.

In thousands, there were 3.0 manufacturing establishments in 1939 and about the same in 1900. Employment ran as follows: 1956, 337.0; 1939, 176.9; and 1900, 87.1.

In millions of dollars, there were payrolls as follows: 1956, 1,054; 1939, 142.0; and 1900, 23.1. Value added by manufacturing ran this way: 1956, 2,093.0; 1939, 280.0; and 1900, 45.1.

In 1958, there were 972.4 thousand telephones, with 288.0 thousand for business and 684.4 thousand for homes.

Personal income in 1957 was 5,407 million dollars.

Employment followed this distribution (1958):

Type of Employment	*Percentage Distribution*
Total employment	100.0
Mining	5.3
Contract construction	4.9
Manufacturing	32.5
Transportation and other public utilities	7.6
Trade	23.5
Finance, insurance and real estate	4.1
Service and misc.	10.1
Government	12.0

Florida

The per capita income was above the region, but below the national level—namely 1,762 dollars in 1956 and 486 dollars in 1939, an increase of 262.5 per cent. Expressed in millions, population was 3.4 in 1956 and 1.8 in 1939, an increase of 81.9 per cent. Housing was 1.1 in 1956 and 0.5 in 1939, an increase of 116.4 per cent.

Also in millions, there were 1.3 telephones in 1956 and 0.2 in 1939. In 1956, 35.3 per cent of all telephones was for business use and in 1939 the percentage was 52.1. The percentage increase in totals was 473.2.

Manufacturing establishments in thousands were: 1939, 1.9; 1900, 1.2. (An increase in the number of establishments is quite rare.) Employment in thousands was as follows: 1956, 1,440; 1939, 62.6; and 1900, 37.2.

The ensuing is expressed in millions of dollars: Payrolls in 1956, 500.0; in 1939, 55.3; and in 1900, 12.2. Value added by manufacturing in 1956, 1,130.0; in 1939, 115.8; and in 1900, 21.3.

Telephones for 1958 in thousands: Total 1,507.5 — business 517.4 and homes 990.1.

The personal income in 1957 was 7,522 million dollars.

Employment in 1958 was as indicated:

Type of Employment	*Percentage Distribution*
Total employment	100.0
Mining	0.7
Contract construction	11.6
Manufacturing	14.5
Transportation and other public utilities	9.2
Trade	34.2
Finance, insurance and real estate	5.3
Service and misc.	15.7
Government	8.8

Alabama

The per capita income in 1956 was 1,229 dollars, and in 1939 it was only 250 dollars, an increase of 391.6 per cent.

(a) Population and (b) households, in millions, were: (a) 3.0 for 1956 and 2.8 in 1939, an increase of 7.0 per cent; (b) 0.8 for 1956 and 0.6 for 1939, an increase of 21.6 per cent.

Telephones, in millions, numbered 0.6 in 1956 and 0.1 in 1939, an increase of 353.5 per cent. In 1939, business absorbed 26.7 per cent of the telephones and in 1939 it was 36.8 per cent.

(a) Number of manufacturing establishments and (b) employment, both in thousands, were as follows: (a) 1939, 1.9, and 1900, 2.0; (b) 1956, 233.0; 1939, 129.2 and 1900, 54.9.

(a) Payrolls and (b) value added by manufacturing, both in millions of dollars, were as follows: (a) 1956, 829.0; 1939, 114.7; and 1900, 16.9. (b) 1956, 1,589.0; 1939, 245.5; and 1900, 34.1.

Telephones in thousands in 1958 were 708.6, with 186.9 for business and 521.7 for homes.

The personal income was 4,171 million dollars in 1957.

Employment for 1958 as noted below:

Type of Employment	*Percentage Distribution*
Total employment	100.0
Mining	2.0
Contract construction	5.7
Manufacturing	32.9
Transportation and other public utilities	6.7
Trade	20.9
Finance, insurance and real estate	3.7
Service and misc.	9.2
Government	18.9

Mississippi

The per capita income in 1956 was 964 dollars and this was an increase of 370.2 per cent since 1939, when it was 205 dollars. Population and households, in millions, were: 1956, 2.1 for population and 0.5 for households; 1939, 2.1 for population and 0.5 for households, and actually, there was a decrease of 3.3 per cent in population, but an increase of 1.8 per cent for households.

In millions, there were 0.3 telephones in 1956 and this was an increase of

(Please turn to page 50)

What is your JOB OBJECTIVE?

By GILBERT R. BRACKETT

TOP SUPERVISION did not build the telephone system into the vast industry it is today. It was the individual, hard-hitting, hard-working mass of telephone people who built it. They gave of themselves and their time. They fought ice, sleet, snow, tornado and disaster of many degrees to keep the flow of calls undisturbed. Through suggestion and discovery they built, developed and activated new methods and advanced apparatus and circuitry for the utilization of the electrical phenomena that, today, spells communications with capital letters.

It must be agreed, however, that men who have turned out to be top executives in the telephone business have, in many cases, become the nation's most successful men. They have generally started on the ground floor as linemen, installers, repairmen, construction workers, accountants, etc.

I am sure you have heard the young man of today repeat many times, "But how many men can become executives?" Such a question can easily be answered by another question: "What would have happened to any one of our present-day executives had he asked himself that same question in his early days and permitted it to stop him cold?"

We Still Have Frontiers

Some young men are ambitious and some are not. Some welcome responsibility, others shun it. Some start out like a rocket headed for the moon but, lacking a firm resolution, are quickly discouraged and settle into a groove from which they never recover. What had looked like a golden opportunity at first, turns out to be just a job. The "big position" they had set their sights toward proved to be, in their eyes, nothing but a white-collar assembly line.

I have known many aspiring young men who have displayed a timidity of purpose that would have lost us World War II a little over a decade ago. They battled the undercurrent of frustration and disappointment for a short while and then gave in, floundering about in the tidal wave of uncertainty and ending up in a world of mediocrity.

Young men, don't let the "know-alls" tell you that the frontiers to bigger and better supervisory jobs are closed. To those who are afraid, they have always been closed. Executive jobs are few, but, today, the opportunities are more abundant than at any time in history. They are open to those who are willing to hustle and find them and then, with fortitude and determination, hold them.

Many Opportunities

I know of one young man who set his sights high on the target. "Some day," he said, I shall be president of this company!" At the time he was a local commercial manager. We, of course, kidded him unmercifully. He took the ribbing in good grace but set his lips firm and reiterated his promise. Slowly, but surely, we saw that man rise in eminence. He took the frustration and pauses that go with such ambitions with a smile. He eventually became the youngest chief executive ever to head the company.

I have talked to linemen, repairmen and installers who have been offered a supervisory job as their first step up the ladder to administrative prominence. In each case, the offered job was not accepted. The reason given? The men did not want to assume the responsibility associated with leadership. "Supervisors have to do a lot of bossing," they told me. "I am no good at that!"

These men were all specialists in their particular fields. They were happy with the jobs they had—"Why change for the life of worry that goes with supervision?" When all is said and done, we have to have workmen—good workmen—and they all cannot become management people.

The communication industry is dedicated to a service of ever-increasing scope. The opportunities for young men are 10-fold compared to those they might have had a few decades ago.

There are no trick formulas, no easy roads to advancement. It calls for much hard work, perseverance and faith in oneself and even then there is no guarantee of success. Young men have never reached top-level management without passing through such obstacles as frustration, discouragement and casualness. Too, they enter into areas of jealousy. Perhaps at times they were haunted by the fears of failure. Even so, they overcame obstacle after obstacle until they reached the goal they had set as their objective.

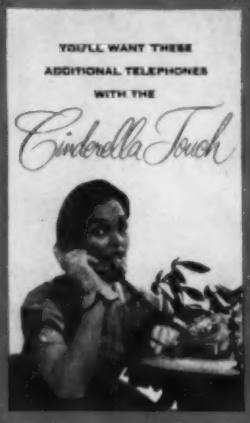
A man must plan his future job resolutions with infinite care. He must set a goal for himself and his objectives must be definite and clear in his mind. His development cannot be left to chance. He must map each move if he is to reach the top rung in the ladder of achievement.

Middle Ranks Open

Today, heads of industry recognize the importance of qualified management people who will promote success of their enterprises. This is partly due to the trend toward decentralization, which increases the demand for more supervisory personnel in the middle ranks of management.

Generally, the lack of education can and does slow down a man's job progress, but it need not be a complete deterrent to the plans one may have for

(Please turn to page 66)



COLOR TELEPHONES

This beautiful stuffer is printed in full color—8 pages, accordion-folded. Features Type 80 telephones in attractive room settings that'll put new ideas into any woman's head! Shows all 10 popular phone colors.

ELECTRONIC SECRETARY*

Educates your entire community on Electronic Secretary. Send it to every phone user in town. Then, when he calls a number and an Electronic Secretary answers, he'll understand what it's all about. And if he's a businessman, he'll want one, too!

10-A1 KEY SYSTEM

You know the advantages of pushbutton telephone service for small offices; this 4-page stuffer will help you sell this service. Describes how calls can be answered, held, and transferred—and how the same telephones can be used for *internal* service.

TELEPHONE TAG

Your installer gives this 8-page folder to the lady of the house when he installs a phone. It tells how to care for the phone—how to clean or remove stains from it. Also describes complete line of AE phones for the home; helps sell extensions.

NEW sales aids
to help you promote extra revenue

Here are four new sales aids published by AE to help you promote additional revenue in your community. These folders are each 3″ by 5″ so that you can use them as envelope stuffers with your monthly bills. You can also use them as handouts. Space is provided for imprinting your company name. Write for your free copies of any of these sales aids. Just fill out the coupon (at right) and mail today.

*ELECTRONIC SECRETARY is a registered trademark of Electronic Secretary Industries, Inc.

AUTOMATIC ELECTRIC
GENERAL SYSTEM
Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

AUTOMATIC ELECTRIC SALES CORPORATION
NORTHLAKE, ILLINOIS
ATTENTION: J. M. ZIDLICKY, Director of Sales Promotion

Gentlemen:

Please send me the following sales aids:

☐ COLOR TELEPHONES. Quantity:_____
☐ 10-A1 KEY SYSTEM. Quantity:_____
☐ TELEPHONE TAG. Quantity:_____
☐ ELECTRONIC SECRETARY. Quantity:_____

MY NAME IS_____
PLEASE PRINT CLEARLY

MY COMPANY NAME_____

STREET ADDRESS_____

CITY_____ ZONE_____ STATE_____

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

IT IS ALWAYS a dangerous undertaking to stop a car along a busy highway, but in the case of a flat tire or other trouble, it is sometimes necessary.

A flare of some type will provide a degree of protection and one should always be carried in every car.

When a suitable flare is not available, the burning of a paper milk container will make a fairly good substitute. One of these waxed paper containers of average size will burn seven to 10 minutes, or longer, and provides a fairly good warning signal.

If you cannot provide a better flare, it is a good plan to carry several of these empty milk containers in your car for emergency use.

•

Texas now claims the world's first individually air-conditioned telephone booths. These booths grace the front porch of the Harris-Ft. Bend County Telephone Co.'s new building at Sugar Land. Customers are invited to "call their friends and cool off for a dime."

•

The Pentagon's PBX system for the Department of National Defense, said to be the largest in the world, was cut over to in-dialing on July 12. This direct in-dialing makes it possible to dial directly the extension number you are calling without going through the switchboard operator.

To call someone in the Pentagon whose extension number is 54825, you now dial OX (the new central office designation OXford assigned to the Department of Defense for in-dialing) and then dial the extension number. For example, you would dial OX 54825.

If you are calling from outside the Washington Metropolitan area, you can reach the extension by first dialing 202, the Direct Distance Dialing (DDD) area number for Washington, plus OX and the extension number. Or, more simply, you dial 202 OX 54825.

If you should not know the extension number of the individual you are calling, you can reach them through the system formerly used:

(1) Dial LIberty 5-6700.
(2) Ask the switchboard operator for the extension number.

•

One of the main troubles with this world is that there are too many fellows who are always ready to reach for the stool when there is a piano to be moved.

•

For the past 10 years, in the northern California area, the Pacific Telephone & Telegraph Co. has been using the defensive driver method of training motor vehicle drivers. Their accident rate dropped from one accident for every 45,531 miles driven in 1948 to one accident for every 102,137 miles driven in 1958, a decrease of 55 per cent.

Since their driver safety record was indicating such a substantial improvement, Pacific T&T decided in 1956 to offer the defensive driver training program to communities in the area as a community service. The resulting publicity and the enthusiastic response of local and civic organizations indicated that they were on the right track in providing a worthwhile community service.

Requests were received from other cities and the plant and commercial people coordinated their efforts in meeting them. Plant provided the instructors and commercial the community contacts.

To date, seven cities in northern California have been covered and 213 men trained as instructors from 146 industries and service groups. Through this program, defensive driver training has been given to an estimated 25,000 industrial vehicle operators.

The long range plan of the company is to develop this program to the fullest extent possible. It fills a real community need and helps to develop a favorable corporate image.

•

"Continental Classroom," the first network TV program for college credit, will present a new course — Modern Chemistry — during the 1959-60 academic year. This program will be telecast five days each week from 6:30 a.m. to 7:00 a.m., local time, over the NBC network, beginning Sept. 28.

This program is unique in the educational television world. It is carried on 150 network stations and is offered for credit at 265 colleges and universities throughout the United States, Hawaii and Puerto Rico.

•

We have a letter from a reader who is of the opinion that a large percentage of our telephone troubles are manmade. To prove his point, he cites, as an example, days which the operating companies observe as a holiday such as Washington's birthday, when most other businesses function full blast. On these days, he states that troubles reported fall off about 70 per cent. Then, when the employes come back on the job, up go the trouble reports to the old level.

We would not attempt to answer this question as it does not seem possible that so many troubles could be caused by workers. It may be that subscribers experience just as much trouble on a holiday, but they wait until a working day to report it.

•

Committee work is compared to a soft chair—easy to get into, but hard to get out of.

TAXES

Take $3 of Every $10 Paid for Service, Illinois Bell Finds

WHAT THE PRESENT-DAY heavy taxes mean to the telephone industry was graphically portrayed in an information bulletin distributed to its employes recently by the Illinois Bell Telephone Co.

Illinois Bell says that "three dollars of every 10 dollars paid for telephone service go for taxes." This statement is based on figures which the company has compiled from its own records.

The proportion of money paid in taxes to other items on each $10 telephone bill may differ for various companies, but the Illinois Bell breakdown is revealing, and may prompt other companies to draw up the picture using their own figures.

Portions of the Illinois Bell *Information Bulletin* for May, 1959 follow. Accompanying illustrations are from the bulletin.

"About 155 million dollars—almost one-third of the customer payments last year—went to federal, state and local governments.

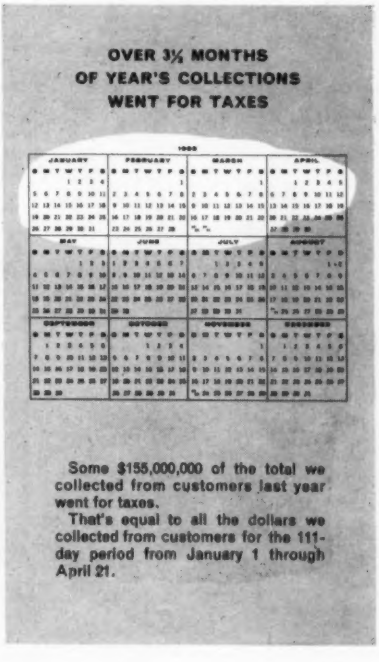
"Try this one the next time you're discussing the cost of telephone service with a friend . . . ask him, 'Where do you think most of that money goes?'

"If he says 'Wages,' he's right. Then ask him where the second largest amount goes. Chances are he'll be stumped.

"The answer, of course, is 'Government.' Taxes take—on the average—about $3.00 of a $10 telephone bill. We say 'of course' because everyone is aware of taxes. 'Nothing is sure but death and taxes.' Taxes we take for granted.

"Good citizens—Illinois Bell included—willingly pay necessary taxes to support our national defense program and provide schools, roads, fire and police protection—the services which are, by common consent, the domain of government.

"But *should* good citizens just take them for granted? Shouldn't they instead familiarize themselves with the tax picture . . . find out what taxes there are, how big they are, who pays them, and what the money is used for? This would seem important for two big reasons:


OVER 3¼ MONTHS
OF YEAR'S COLLECTIONS
WENT FOR TAXES
Some $155,000,000 of the total we collected from customers last year went for taxes.
That's equal to all the dollars we collected from customers for the 111-day period from January 1 through April 21.

"(1) Only *people* . . . individuals . . . pay taxes in the end.

"(2) These same people are the only ones who, through their elected governmental representatives, have the power to determine the course of taxation.

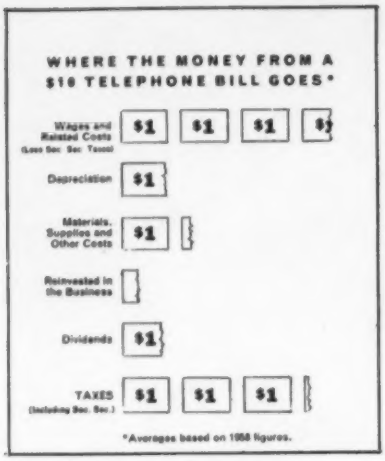
Who Pays Taxes?

"Someone once said, 'There is no such thing as a corporation tax.' Of course, corporations . . . businesses of all kinds . . . are taxed, but what he was saying is that ultimately, *people* . . . you and I . . . pay these taxes on business.

"Take that $10 telephone bill for instance. We said that about $3 of it is for taxes. It includes a 10 per cent federal excise tax on local and long distance telephone service which the *user* pays directly. Illinois Bell only collects it and passes it on to the Government. It's itemized separately on the bill, as is the additional charge on account of the municipal utility tax in Chicago and eight other towns in our territory which imposed a utility tax.

"Another part of that $3.00 goes toward the income and various other federal taxes our company pays. Then there are personal property and real estate taxes, the three per cent state messages tax on Illinois intrastate revenues, state and federal unemployment taxes, social security tax . . . 16 different direct taxes on the company in its operations.

"They are a 'part of the cost of doing business,' and every customer pays them in his telephone bill. Illinois Bell is taxed, but the customer pays all costs of the service, including the tax portions. It's the same in every business. *Only people pay taxes.*



Where That $10 Goes

"If that $10 telephone bill were itemized to show where the $10 goes, here's about what it would look like:

"Wages and related costs (less Social Security taxes) ..	$ 3.60
"Depreciation	.98
"Materials, supplies and other costs	1.13
"Reinvested in the business.....	.38
"Dividends	.88
"Taxes (Including Soc. Sec.)...	3.03
Total	$10.00

"Note a couple of things indicated here . . . taxes are second only to the wage item in the size of the chunk they took out of the total the customer paid for his service. Taxes took about 2½ times the portion that was available to pay our share owners for risking their savings in our business.

"For 1958, the total telephone tax bill came to nearly 155 million dollars. Nearly 41½ million dollars of it was excise tax collected by Illinois Bell Telephone for the Government. The remainder, 113½ million dollars, amounted to ⅔ of the 178 million dollars that was left after payment of wages and all other non-tax costs including interest on debt.

"Nor is this yet the whole story. For built into the cost of things Illinois Bell buys from its suppliers are *more* taxes. Since these costs are part of the cost of providing telephone services, our customers pay them, too.

"The scope of such 'hidden' taxes is hard to imagine. The Taxpayers' Federation of Illinois, for instance, reports that there are 151 taxes on a loaf of bread . . . 100 taxes in the cost of an egg . . . 116 taxes on a man's suit . . . 150 taxes on a woman's hat.

What Does It All Amount To?

"The Taxpayers' Federation says that direct and 'hidden' taxes comprise the largest single item in the average American family's budget—even larger than food or housing. It estimates that on the average, the American worker toils two and a half hours every working day to earn his taxes—and telephone taxes are part of this.

"In regard to telephone taxes alone, we've talked so far about 'a ten dollar-telephone bill.' Now let's talk about *actual* telephone bills and what telephone taxes amount to per customer.

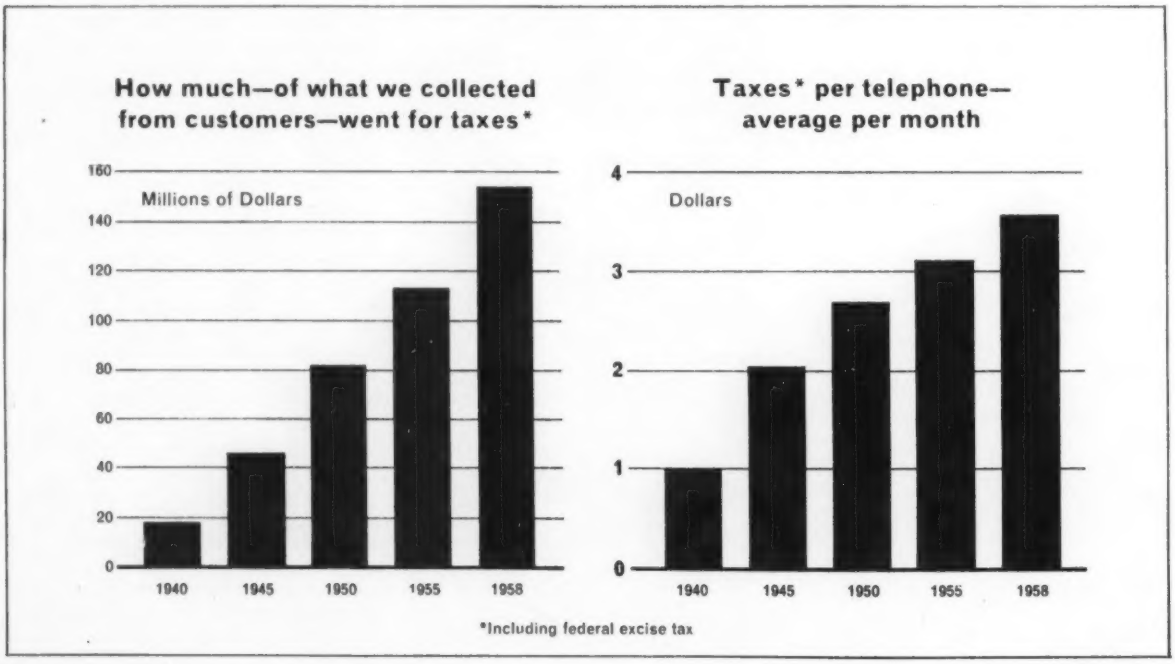
"For the year 1958 as a whole, the tax portion—including excise tax—of our customers' telephone bills averaged an estimated $35 in the case of residence service and $290 in the case of business service. Remember, too, that the business customer's telephone taxes are part of *his* 'cost of doing business,' so he necessarily passes them on to *his* customers. Here we are again with *people* paying the taxes ultimately out of their family budgets.

Tax Load Gets Heavier

"We've taken a quick look at the kinds of telephone taxes levied, and what they amount to and who pays them. But the tax picture isn't complete without a look at what the future holds.

"Authorities tell us to look for increased taxes in the near future. Facts seem to indicate they are right.

"Federal Government spending for the fiscal year ending in mid-1959 is expected to be the highest for any year except during World War II," and is estimated to "exceed income by more than 12 billion dollars. The new balanced budget now before Congress, for the fiscal year beginning July 1, calls for expenditure of 77 billion dollars for military, public welfare, farm aid, veterans' aid, highway construction and various other federal programs. With many big spending bills already before Congress, the budget could easily be thrown back into the red. . . ."



REA Approves Ten Loans

Ten telephone loans, totaling $3,575,000 were approved recently by the Rural Electrification Administration.

Treasure State Utilities Corp., Absarokee, Mont.; $1,018,000; July 21.

This new borrower proposes to use these funds to improve service for 693 subscribers and furnish initial service to 558 subscribers.

The borrower will construct new automatic central offices at Belfry, Broadview, Molt, Rapelje and Reedpoint, and will install new and larger automatic facilities at Absarokee. Treasure State will use its own funds to install new automatic facilities in the Nye exchange.

A portion of the loan will refinance the borrower's existing indebtedness.

Lee O. Traver is both president and manager of the Treasure State Utilities Corp.

•

Calvert Telephone System, Calvert City, Ky.; $142,000; July 22.

These funds will enable the Calvert company to furnish initial service to 44 subscribers and install mobile automatic radio-telephone facilities in its Calvert City exchange.

Funds are included in the loan to complete the authorized system, including an automatic central office in Columbus.

Loans to this borrower now total $1,392,000, which will benefit 3,084 subscribers.

LeRoy T. Carlson is president and William Thomason is local manager of the Calvert Telephone System.

•

Glenwood Telephone Membership Corp., Blue Hill, Neb.; $296,000; July 22.

This loan will enable the borrower to acquire, rehabilitate and integrate the Campbell Telephone Co. and the Upland Telephone Co. These facilities, now furnishing magneto service to 449 subscribers, will serve as a nucleus for the expanded Glenwood system. Existing subscribers will receive improved service, and initial service will be provided for 26 subscribers in the area.

New construction planned by the Glenwood Corp. includes central offices at both Campbell and Upland. A portion of the loan will be used to remodel an existing building in Blue Hill for headquarters facilities.

REA loans to the borrower now total $1,331,000 which will benefit 2,217 subscribers.

Jerome E. Komen is president and Ben Wagner is manager of the Glenwood Telephone Membership Corp.

•

Scott County Telephone Cooperative, Gate City, Va.; $359,000; July 22.

These and funds from prior loans will enable the borrower to furnish initial service to 468 subscribers, construct new headquarters at Gate City, and complete its authorized system.

The company's REA loans now total $1,104,000 which will make possible new and improved service to 1,566 subscribers and automatic service to approximately 990 subscribers.

Rufus Rollins is president of the Scott County Telephone Cooperative and Harry H. White is the manager.

•

Madison County Telephone Co., Inc., Huntsville, Ark.; $500,000; July 24.

These funds will enable the new borrower to improve service for its 423 subscribers and to furnish initial service to 566 subscribers. Presently the company furnishes magneto and common battery service.

The new construction schedule includes automatic central offices at Huntsville and Kingston. The latter is a newly created exchange.

J. Curtis Shrum is president and manager of the Madison County company.

•

Richmond (Kan.) Dial, Inc.; $134,000; July 24.

The borrower plans to use the loan to improve service for the 173 subscribers of the Princeton Telephone Co. which it recently acquired, and to furnish initial service to 26 subscribers. A new automatic central office will be built to replace the existing magneto facilities at Princeton.

A portion of this loan will finance completion of the authorized system.

The two REA loans to Richmond Dial, Inc., which total $271,000, will enable the borrower to furnish new and improved service to 552 subscribers. The completed system will consist of exchanges at Princeton and Richmond. The latter is now furnishing automatic service to about 270 subscribers.

Robert L. Brown is president and manager of Richmond Dial, Inc.

•

Mid-Plains Rural Telephone Cooperative, Tulia, Tex.; $237,000; July 24. The loan will enable the borrower to complete its authorized system, construct new headquarters facilities in Tulia, and install mobile radio equipment for system maintenance.

Mid-Plains has now received $1,624,000 in REA loans, which will finance facilities to furnish new and improved service to 1,647 subscribers. The system's eight automatic exchanges are all in operation serving approximately 1,400 subscribers.

Victor L. Harman is president and R. W. Shackelford is manager of the Mid-Plains Rural Co-op.

•

Darien (Ga.) Telephone Co., Inc.; $560,000; July 27.

The new borrower plans to use these funds to improve service for its 525 existing subscribers and to furnish initial service to 596 subscribers. The present system consists of an automatic exchange at Eulonia and common battery facilities at Darien.

(Please turn to page 52)

Danish and American flags frame a survey crew's temporary house atop the two-mile thick Greenland ice cap.

Helicopters Used In Survey of DEW Line Extension

WORKING ACROSS the windswept Greenland icecap, engineers recently finished an extensive survey confirming suitable locations for radar and communication stations previously selected by Air Force personnel. These stations, when completed, will extend the DEW Line chain of radar warning stations to Iceland, 1,200 miles east of the present terminal on Baffin Island in Canada, the Western Electric Co. has revealed.

This work has been carried out under a contract with the Air Force. It calls for Western Electric, builder of the DEW Line, to assume management of the communications and electronic phases of the project, including the responsibility for engineering, procurement, logistical support, installation, and testing. The formidable task of constructing these stations will be the responsibility of the U. S. Army Corps of Engineers. Two contracts for the Greenland stations were recently awarded to Peter Kiewit Sons' Co., New York City, and Danish Arctic Contractors, Copenhagen.

The Tactical Air Command of the U. S. Air Force is making the job of construction on the Greenland icecap possible by air lifting men, material and equipment to the sites in C-130 cargo planes equipped with skis.

Named DEW-East, the extension will give increased warning in the event of an attack by aircraft on the NATO countries, including the United States and Canada. Completion of the project will demand establishing the first reliable communications link over such a vast expanse of ice.

Despite the fact that much of the preliminary survey work was done atop an icecap nearly two miles thick and under the threats of sudden freezing storms, which destroyed the facilities of one station, the task was successfully completed under the tight schedule imposed by the Arctic summer. An Air Force Arctic survival expert accompanied each crew to insure the least possible hazard under these conditions. Ski-equipped C-123 cargo planes of the Strategic Air Command Eighth Air Force supported this phase of the survey, making many landings on the snow of the Greenland icecap.

For added safety, the planes traveled in pairs accompanied by a C-54 transport plane to provide for navigation. The pilots still faced the hazard of flying over a featureless mass of snow. They carried out this vital task without accident.

In the coastal areas, where no roads had been carved out of the jagged rock, Air Force and commercial helicopters served in place of trucks. Enough work has already been done by the U. S. Air Force and Corps of Engineers survey teams to indicate that conditions of climate and terrain in Greenland are even more severe than those encountered by Western Electric and its subcontractors in building the original DEW Line across the top of Canada.

Under the supervision of the Air Force DEW Project Office, Western Electric sub-contracted the task of testing the suitability of the sites, including two on the icecap itself, to Page Communications Engineers, Inc. of Washington, D. C. The sites had been selected earlier by the Air Force. Astronomers from New York's Hayden Planetarium and scientists of the National Bureau of Standards accompanied the survey party. On the accuracy

(Please turn to page 70)

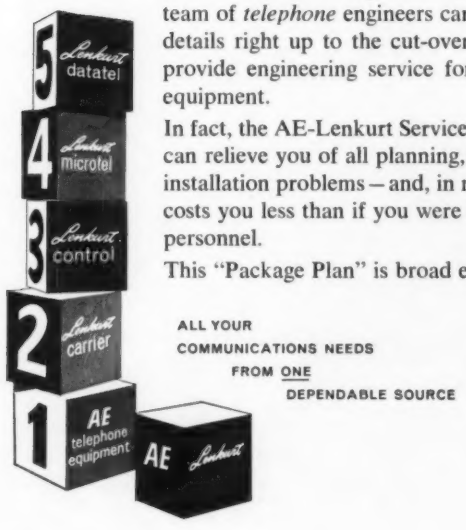
Temporary shelters for the DEW Line crews are perched among some of the most rugged terrain in the world.

AE-Lenkurt

HAS EVERYTHING YOU NEED FOR PROFITABLE CIRCUIT GROWTH...

AE-Lenkurt engineers are fully equipped and ready to go any place at any time to see your job through.

"PACKAGED" SERVICES, for instance...



ALL YOUR COMMUNICATIONS NEEDS FROM ONE DEPENDABLE SOURCE

AE-Lenkurt has a full line of equipment to meet *all* your communications needs, but did you know that they can also provide a wide variety of other services? If you wish, the AE-Lenkurt team of *telephone* engineers can take care of all details right up to the cut-over date, and even provide engineering service for the life of the equipment.

In fact, the AE-Lenkurt Service "Package Plan" can relieve you of all planning, engineering and installation problems – and, in most instances, it costs you less than if you were to use your own personnel.

This "Package Plan" is broad enough to handle complete projects from start to finish, yet sufficiently flexible to provide economically just the partial services you need. Experienced project engineers plan your system requirements in detail, procure the necessary equipment, arrange for construction, supervise installation, and train your operating and maintenance personnel on the job.

For full details on Lenkurt's "Engineer, Furnish and Install," AE's "Follow-Thru Engineering," or the complete AE-Lenkurt Service "Package Plan," call your Automatic Electric representative, or write T. B. Collins, Automatic Electric, Northlake, Illinois.

AUTOMATIC ELECTRIC GENERAL SYSTEM

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

Courts and Commissions

Two Rate Adjustments Authorized in Georgia

The Ellijay Telephone Co. has been granted approval by the Georgia Public Service Commission to increase its rates, effective Aug. 1. The company had filed its application on May 27.

The company said in its application that on Mar. 31, 1959 it had completed a year of operating experience under its REA-financed improvement and expansion program. It showed that it did not earn the fixed charges on its long-term debt nor an adequate return on its investment. It also indicated that increased salaries and general expenses required the additional revenue sought.

The Ellijay company had a total of 1,100 stations in service at the end of March. Telephone facilities had been cutover to automatic operation a year previously, when there were only 575 stations. The commission pointed out that the company had enjoyed a station growth of some 91 per cent in the year of operation.

Total operating revenues of the company for the 12 months ending Mar. 31 were $64,859.47, and with a rate adjustment allowed of $7,176.12, anticipated revenues will be $72,035.59. Net operating revenues after expenses and taxes were only $822.42. With a net increase of $2,389.30, net operating revenues will be $3,211.72.

Old and new rates for the company are shown as follows:

	Old	*New*
One-party business	$6.00	$6.50
Two-party business	5.00	5.50
Four-party business	4.00	4.50
Multi-party rural business	5.50	5.50
One-party residence	3.75	4.00
Two-party residence	3.25	3.25
Four-party residence	2.75	2.75
Multi-party rural residence	4.25	4.25

•

On July 6 the commission allowed General Telephone Co. of the Southeast to raise rates at two exchanges.

The General company had been granted an increase of $85,767 on May 20 (TELEPHONY, June 13). It had asked for a rehearing and reconsideration of the suspension of increases at its Edison, Ashburn, Montezuma, Monroe and Winder exchanges which was ordered in the May ruling.

The company alleged that the increases should be placed in effect immediately at all of the exchanges affected. It presented additional evidence and testimony which it contended would warrant the change sought in the terms of the original order.

Witnesses for the public testified that the commission's original decision was reasonable. It was alleged that service standards desired by subscribers in the Ashburn, Montezuma, Monroe, and Winder exchanges had still not been met.

There were no complaints about service standards from the Edison common battery manual exchange.

A new central office building has been completed and new common battery manual equipment has been installed at Edison. Automatic equipment which is now on order will be installed in the same building, and it is expected that cut-over to automatic operation will take place about mid-1960. As the company has no held orders for service nor requests for service regrades, it urged that the rates suspended for the Edison exchange be made effective at this time instead of when Edison is cut over. The commission approved this request.

General of the Southeast notified the commission on June 23 that the Cuthbert exchange was cut over to automatic operation on June 21. The commission therefore permitted the company to make the approved rates for automatic service at the Cuthbert exchange effective on and after July 1.

The commission upheld the suspension of rates for service at Ashburn, Montezuma, Monroe and Winder "until such time as service is deemed to be at a level satisfactory to subscribers."

Effective Aug. 1, the commission ordered the following schedule of rates be charged by the Edison exchange:

One-party business	$6.65
Two-party business	5.65
Four-party business	4.65
Rural business	4.25
One-party residence	4.20
Two-party residence	3.45
Four-party residence	2.95
Rural residence	3.05

Asks Neb. OK of Tariff on Customer-Owned Facilities

The Lincoln Telephone & Telegraph Co. on July 20 asked permission of the Nebraska Railway Commission to replace separate agreements covering connection of company facilities with communication facilities owned by railroad, power and pipe line companies with provisions in the company's general exchange tariff.

The added tariff provisions would permit continuation of connection of customer-owned facilities to telephone-company-owned facilities with the privilege of use for toll and message purposes where such customer-owned facilities qualified for this connection on July 14, 1959, under previously existing contracts.

The provisions also set forth the conditions on which customer-owned circuits will be connected to telephone-company-owned facilities when customer-owned circuits are added or changed. Generally, extension of these customer wire line, carrier and microwave facilities into the telephone company exchange and toll facilities will be limited to emergency use only.

Missouri Cities Challenge General Company Increase

The Missouri Public Service Commission has scheduled a hearing for Sept. 16 to permit the cities of Columbia and Centralia to challenge rates set for General Telephone Co. of Missouri (TELEPHONY, July 4).

While the commission denied a request by the company for a $580,000 annual rate raise, it authorized the company to raise rates enough to add $400,000 a year to its revenues.

Herman Huber, counsel for the two cities, said there was no opportunity to challenge the second set of rates after the General company submitted

Rural Telephone Lines

TALK BETTER LAST LONGER

with low-cost

Copperweld® O-Eighty-Thirty

TELEPHONE LINE WIRE

The superior voice transmission of O-Eighty-Thirty Telephone Line Wire makes friends and builds good will every time a subscriber picks up his phone. And this low-cost line wire continues to provide the same excellent talking qualities even after many years of service. There's no building-up of noise level and weakening of signals due to rust, because O-Eighty-Thirty is completely non-rusting.

You save money, too. The initial cost is practically the same as ordinary wire. And its extra high strength permits economical long-span construction on both voice and carrier circuits. O-Eighty-Thirty is easy to install, due to its light weight—which also saves on shipping and handling costs.

In short, you can provide high-grade service at low cost for your subscriber loops and secondary toll lines by stringing O-Eighty-Thirty Line Wire. And you'll be building for long, trouble-free life.

Write us today for prices, sag data and staking tables.

COPPERWELD STEEL COMPANY

WIRE AND CABLE DIVISION *Glassport, Pa.*

For Export: COPPERWELD STEEL INTERNATIONAL COMPANY, New York

SOLD BY LEADING DISTRIBUTORS

them late in June, and they were approved by the commission.

Consequently, he said, the company has lowered rates slightly in the towns of Memphis and Cameron, while raising some rates in Centralia as much as 100 per cent.

Mr. Huber traced what he called the "inequity" back to 1950 when the commission allowed Southwestern Bell Telephone Co. to group its exchanges according to the number of telephone subscribers. The commission also allowed the General company to group its exchanges in six groups, according to the number of subscribers.

The result of this, Huber said, is that the bigger exchanges subsidize the little ones. No matter the size of an exchange, he asserted, the average telephone users actually make about the same number of calls. Huber feels the telephone of a subscriber in Cameron is just about as useful to him as is the telephone of a subscriber in Columbia.

The Sept. 16 hearing reportedly was viewed as providing a possible reexamination of the grouping system authorized by the commission for Southwestern Bell nine years ago.

Approve Improvement Loan For Alabama Company

A proposed loan of $55,000 was approved by the Alabama Public Service Commission on July 13 for the Falkville Rural Telephone Co. to finance new automatic facilities.

Company officials said they plan to borrow the money from the Stromberg Carlson Division of General Dynamics Corp.

Previously, the commission had authorized the company to take over the territory formerly served by the Massey Telephone Co.

File 3 Rate Requests; Ask New Subscriber Rates in Wis.

Hearings were set by the Wisconsin Public Service Commission on Aug. 13 on applications for rate increases filed by the North-West Telephone Co., Tomah, and by the Milton & Milton Junction Telephone Co., Milton Junction.

Also to be heard was the request of the United Telephone Co., Monroe, to apply its Albany exchange rates to subscribers acquired through the purchase of the Attica Mutual Telephone Co.

•

Luck Telephone Co.'s request for authority to increase its rates was to be heard by the commission on Aug. 14.

Authorize Sale in Neb.

The Nebraska Railway Commission on July 21 approved the sale of the Home Telephone Co., Brady, a sole proprietorship, owned by Rodney E. Chrisp, to the Home Telephone Co. of Nebraska, Inc. The seller operated 376 stations.

General of Ill. Granted $3.2 Million Increase

The General Telephone Co. of Illinois on July 31 was granted a 3.2 million dollar rate increase by the Illinois Commerce Commission (TELEPHONY, Sept. 27, 1958).

The company had asked for a raise amounting to $3,603,000.

General serves 900 communities in the state through 332,000 stations. The commission found the value of the company's property to be 88 million dollars.

The increase represents a 6.25 per cent return on the fair value rate base.

The commission denied the company's proposal to substitute a 35-cent monthly rental charge for the $7.50 installation charge for color telephones. Also rejected was a proposal to discontinue two-party service.

Provide EAS in Texas

Extended area service between the Ausborne, Tex., exchange of the Poka-Lambro Rural Telephone Cooperative, Inc., Tohoka, and the Wheatley, Tex., exchange of General Telephone Co. of the Southwest, went into effect on July 21.

A coordination meeting between the USITA Engineering Committee and representatives of the American Telephone & Telegraph Co. was held on June 23 and 24 in New York City. Such subject areas as numbering plan area codes, person-to-person DDD, Dataphone, PBX in and out dialing, transmission maintenance, and closed circuit television were discussed as well as other matters requiring industry coordination. It is anticipated that interim reports on the various subjects will be made available through USITA in the near future. Present at the coordination meeting were (left to right around the table): O. L. Moody, staff coordinator, Bell-Independent relations (AT&T); W. A. Pitbladdo (Rochester, N. Y.) member, USITA Engineering Committee; A. A. Wilson (Mattoon, Ill.) member, USITA Engineering Committee; L. L. Ruggles (Chicago, Ill.) director, USITA Subcommittee on Direct Distance Dialing; H. E. Weppler, toll planning engineer (AT&T); W. A. Stevens, systems planning engineer (AT&T); Harry Disston, assistant staff coordinator, Bell-Independent relations (AT&T); W. Rupp, acting equipment and building engineer (AT&T); P. H. Henson (Kansas City, Mo.) chairman, USITA Engineering Committee; C. M. Mapes, assistant chief engineer (AT&T); Martin S. Bodine (Jefferson City, Mo.) chairman, USITA Plant Committee; R. P. Judy, assistant vice president (AT&T); R. J. Loveland (San Francisco, Cal.) member, USITA Engineering Committee; A. C. Ocker, metropolitan planning engineer (AT&T); F. D. Reese (New York, N. Y.) member, USITA Engineering Committee; T. A. McDermott, engineer (AT&T), and Frank Barnes Jr. (Rock Hill, S. C.) director, USITA Subcommittee on Transmission and Protection.

ACME VISIBLE

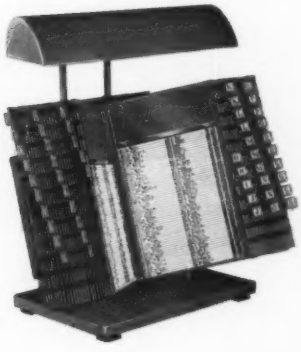
CENTRAL INFORMATION RECORDS

FLEXOLINE speeds up your central information switchboard records. Makes all telephone listings conveniently available to every information operator.

Through the use of Acme FLEXOLINE Equipment, telephone companies have been able to render an improved service at lower cost, speed up service. The ease with which new names or listings are inserted in their correct places keeps the lists always up to date . . . within a few minutes after the change is completed.

Regardless of the type of switchboard or the number of subscribers, there is an Acme Time-Saving FLEXOLINE unit that will meet your individual need.

7,000 to 147,600 Listings Capacity
Flexoline Revolving Stands provide compactness and great capacity. Single and double tier units. May be used on desk, switchboard or mounted on pedestals.



• **1,400 to 32,800 Capacity and Up**
Flexoline Desk Stands, individual units with maximum double tier capacity or in banks for greater capacity.

350 to 2,500 Listings Capacity •
Fexoline Insite Index for small information lists or any other list where speed and accuracy are essential. Used on key shelf or desk. In a wide range of sizes and capacities.

Call upon our experience—nationwide sales and service to the telephone industry

ACME VISIBLE RECORDS, INC., Telephone Division, Crozet, Virginia T-8-15-59

Please send us illustrated booklet of equipment specifically designed for Telephone Companies.

☐ **We are interested in Acme Visible equipment for** _____ (kind of record) _____ **records.**

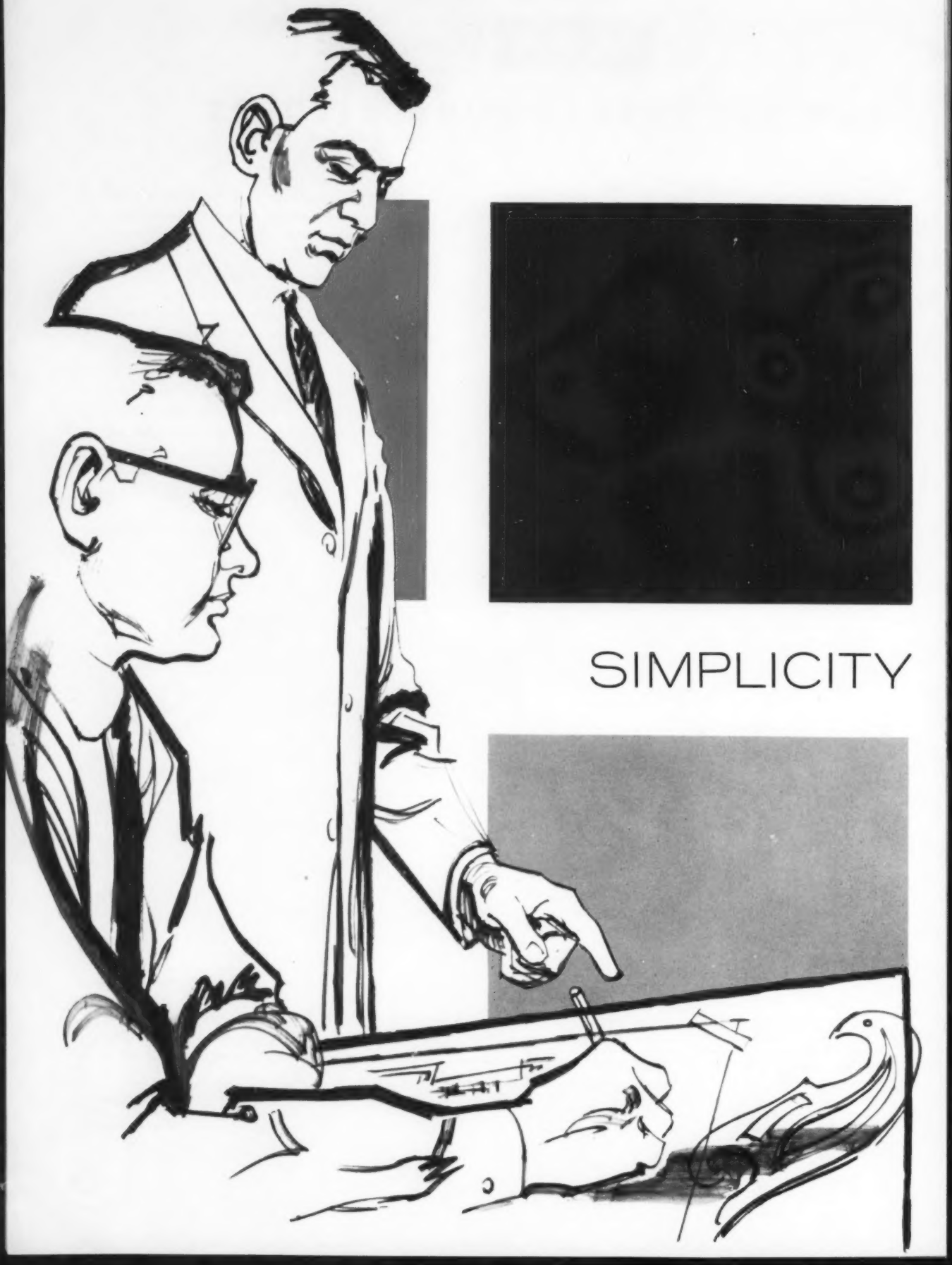
Check department: ☐ **Accounting** ☐ **Commercial** ☐ **Plant** ☐ **Traffic** ☐ **Engineering**

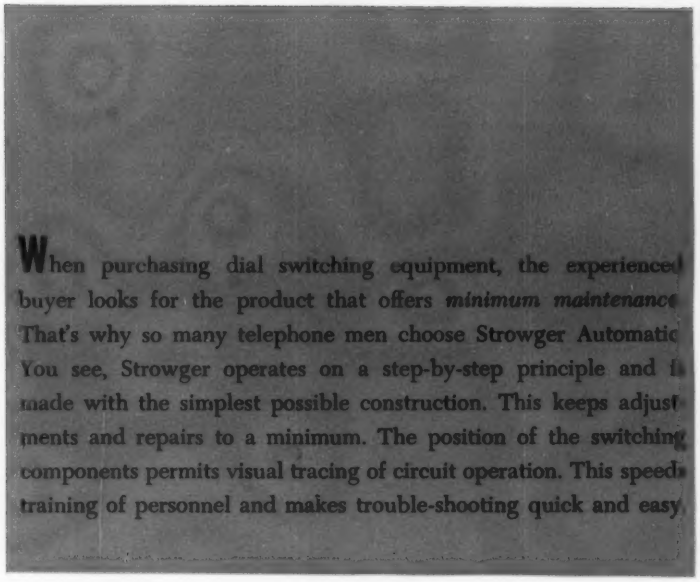
☐ **Have representative call. Date** _____ **Time** _____

Company _____ **Attention** _____

Address _____

City _____ **Zone** _____ **State** _____


SIMPLICITY



When purchasing dial switching equipment, the experienced buyer looks for the product that offers *minimum maintenance*. That's why so many telephone men choose Strowger Automatic. You see, Strowger operates on a step-by-step principle and is made with the simplest possible construction. This keeps adjustments and repairs to a minimum. The position of the switching components permits visual tracing of circuit operation. This speeds training of personnel and makes trouble-shooting quick and easy.

OF DESIGN...

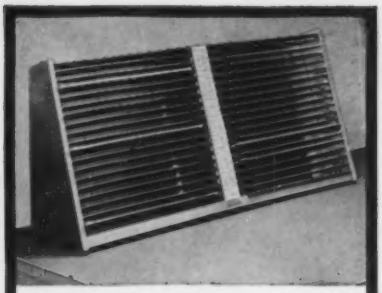
another reason why telephone men choose Strowger!

PROVE IT FOR YOURSELF! Visit a Strowger Automatic exchange. You'll see that Strowger offers unsurpassed simplicity in design. You'll also see the craftsmanship and quality construction of this famous equipment. Then get in touch with us. We'll be glad to help you plan for your dial conversion. Write Automatic Electric Sales Corporation, Northlake, Illinois. In Canada, Automatic Electric Sales (Canada) Ltd., 185 Bartley Drive, Toronto 16.

AUTOMATIC ELECTRIC GENERAL SYSTEM

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS



Trouble Recorder Card Rack

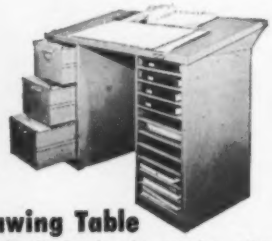
For fast orderly sorting of Trouble-Recorder cards, has 38 card slots in two banks with index strip between. Base is 38" by 8". Height 15". No. D30225-1.

Telephone Office Equipment

to lighten your work and improve efficiency

Work Bench

For repair, assembly, test and paper work. Top drawer divided into 24 compartments for parts and tools. Large file drawers are for circuit drawings. 54" x 25" top covered with masonite. Height 36". Drawers may be inserted from back to reverse position of kneehole. No. D29978-3.



Drawing Table

For circuit drawing in crossbar offices, provides central location for reference material. Masonite top is 30" x 60". Height 36" at front, 42" at rear. Three large file drawers at left for drawings. Eleven shelves at right are 2½" high, 14" wide, 18" deep for sketches, sequence charts, book type SD sheets, trunk serials, etc. No. D30326-1.

Color of all units: Baked-on gray enamel unless otherwise specified.

TWIN POST Neubauer
MANUFACTURING CO.
517 LOWRY AVENUE N.E.
MINNEAPOLIS 18, MINN.

News on New Products

CORDLESS PBX SWITCHBOARD—Leich Sales Corp. announces that it is now in full production on a new cordless PBX switchboard. It is available in 12, 16 and 20 line capacities with five connecting circuits and five central office trunks.

Leich says its cordless features a compact, streamlined cabinet, a unique keyboard arrangement and a simplified arrangement of working parts.

The switchboard is 6½ inches long, 16 inches wide, 7½ inches high and weighs about 47 pounds. It is finished in grey.

A combination of color-coded keys and a low, sloping face are described as letting an attendant extend calls quickly—without reaching or looking up. Odd numbered station line keys are beige, while even numbered keys are black. Trunk and operator keys are grey.

Each key on the Leich cordless PBX has only one operative position. The company says that to reduce the chance of error even further, alternate keys operate in opposite directions.

A built-in multiple on line keys and trunk keys is said to be another feature of the cordless. It removes many possible sources of trouble by eliminating the wiring of each key to all the other keys. Request NP1160.

•

FLOOR-TYPE PBX SWITCHBOARD—Also from Leich is a new type of floor-type PBX offering a unique keyboard and jack-in circuits. The switchboard is Leich's L55 PBX, and was not previously available to the Independent industry.

This L55 PBX is reported to have a formica-type cabinet that is nonflammable and stain-resistant. It's available in standard finishes of brown TV mahogany, webb walnut, and blond ash. Also available on request are

TELEPHONY PUBLISHING CORP.
608 S. Dearborn St.
Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

NP1160_____; NP1161_____; NP1162_____; NP1163_____;
NP1164_____; NP1165_____; NP1166_____; NP1167_____;
NP1168_____.

Name.....Title.....

Company.....

Street.....

Town and State.....

8/15/59

mocha walnut, triangle walnut, pongee walnut and unfinished bay poplar plywood cabinets.

Both pushbutton ringing keys and twist-push type talk keys are in a sloping position above the writing shelf, according to the company. The attendant extends calls quickly and the writing shelf is completely free of keys so she can perform other office duties.

Jack-in circuits are said to allow easy addition, removal, or servicing of equipment. Cord-circuits, operator's circuit and central office trunks are jack-in units. Conference and tie trunk jack units are also jack-in type.

Leich says the new cord circuits used in this L55 PBX have also been designed for maximum range. As a result, there's less need for long line relay equipment at the PBX to handle off-premises extensions.

The switchboard is 29⅜ inches wide, 29-7/16 inches deep and 46-1/16 inches high. The surface of the writing shelf is 30 inches from the floor.

Two basic models, the L55-A3 and L55-B4, are available from stock. Additional lines, trunks and cords may be ordered up to capacity, as well as optional service features, if required.

L55—A3			L55—B4	
Wired	Equipped		Wired	Equipped
60	30	Station lines	80*	40
14	6	C. O. trunks	14	8
15	8	Cords	15	10
1	1	Operator's circuit	1	1

*Capacity: 120 lines

Request NP1161.

•

SWITCHING FACILITY FOR BY-PASSING DAMAGED LINES—An all-digital communication and switching system that automatically by-passes battle-damaged lines and re-routes messages over the fastest available path, was unveiled on Aug. 3 by International Telephone & Telegraph Corp. at the annual meeting of the Association of the U. S. Army in Washington, D. C.

Called Digicom (Digital Communication System), the ultra-reliable switching facility handles information from computers, radar, analog signals, teleprinters, tape-readers, voice and telemetering systems.

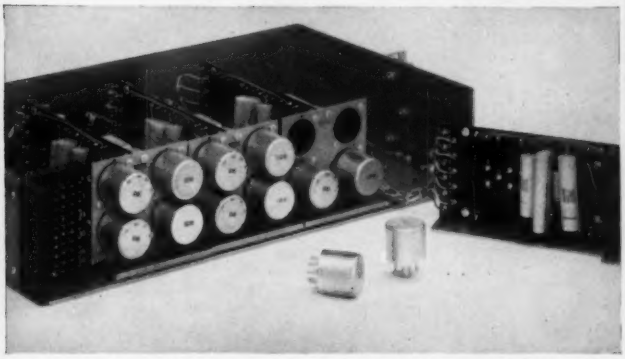
The new system was designed by ITT Laboratories, Nutley, N. J., in cooperation with the U. S. Army Signal Research and Development Laboratory, Ft. Monmouth, N. J.

Digicom makes telephone messages virtually immune to interference ITT says, by transmitting speech signals in the form of electrical pulses which are reconverted into audible messages at their destination. The conversion method is known as Delta Pulse Code

KELLOGG

K-840

4-wire terminating equipment



Units can be extended from the shelf without interrupting service.

SAVES 75% IN SPACE!

Kellogg's new *miniaturized* K-840 meets the high requirements of high grade toll circuits – and takes up only ¼ the space of older equipment!

In addition, the K-840 has these other features:

- Permits operation of signaling trunk circuits without affecting the balance of associated voice circuits.
- Ideal for use in two-wire office where a 27 db balance or better is required.
- Provides nearly constant impedance across the voice frequency band.
- Fine and coarse attenuation adjustments.
- Four units occupy only 3½" of vertical space on a 19" rack.

Your Kellogg sales representative will be glad to explain all the advantages of this low cost versatile equipment.

KELLOGG Communications Division of ITT
CHICAGO, ILLINOIS

Kellogg Switchboard and Supply Company, 6650 South Cicero Avenue
Chicago 38, Ill. Communications division of
International Telephone and Telegraph Corporation

For complete list of Kellogg offices, see pages 6-7.

TAKE A BIG STEP TOWARD SAFETY
WITH DUO-SAFETY LADDERS

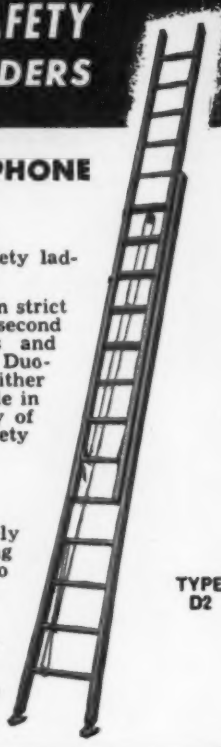
... CUSTOM DESIGNED FOR TELEPHONE MAINTENANCE WORK!

Here's one fine example of the many Duo-Safety ladders ideal for telephone maintenance work.

Type D — a truly great extension ladder built in strict accordance with safety regulations. Rungs are second growth hickory, reinforced with steel rods and equipped with special automatic locks and Duo-Safety's famous Safety Shoes. Made with either straight or parallel side rails, Type D is available in one, two or three sections — in a large variety of sizes. Write for free catalog on all Duo-Safety ladders.

IMMEDIATE DELIVERIES!

Duo-Safety ladders will be shipped immediately upon receipt of order! A planned stock-piling program assures really fast action — there's no delay the Duo-Safety way!



TYPE D2

For Information, Contact Your Supply House, or

DUO-SAFETY LADDER CORP.
809 Ninth Street • Oshkosh, Wisconsin

the BUS BROWN TRENCHER

SMALL—COMPACT—RUGGED
EASY MANEUVERABILITY

TRENCHING IS MORE PROFITABLE WITH THE BUS BROWN TRENCHER

MODEL 346 OFFERS

- More Economy
- Maximum Efficiency at Minimum Cost
- One Man Operation Eliminates High Labor Costs
- More Speed
- Digging Speed and Maneuverability Leads to Faster Job Completion
- Simplicity—Compact and Simple Design Eliminates High and Extensive Maintenance Costs
- Designed For Many Digging Jobs —
  - Water Lines
  - Gas Lines
  - Underground Electrical Wire
  - Lawn Irrigation
  - Underground Telephone Cable
  - Signal Cable
  - Laying Out Limits For Excavations

SPECIFICATIONS

1. Power — Model AENL Wisconsin engine.
2. Shipping Weight — 750 lbs.
3. Frame — Rigidly Welded ¼" steel plate.
4. Tires — 4x8 Pneumatic, traction type.
5. Digging Chain — Tough Roller Chain with easily detachable Cutters.
6. Bearings — Roller Bearings with zerk fittings. Ball Bearings, permanently sealed.
7. Trenching Width and Depth —
   3 inches wide up to 5½ feet deep.
   4 inches wide up to 3½ feet deep.
   6 inches wide up to 2½ feet deep.
   (Obtained by different length booms and boom control).
8. Self-Propelled — Drives on all four wheels while digging, rear wheels while in transport gear.
9. Hydraulically Controlled Digging Boom.

Manufactured by BROWN MANUFACTURING CO., Inc.
WOODBINE, IOWA

Modulation, on which ITT has basic patents.

The system was conceived to complement military strategy calling for pentomic army divisions to fight widely dispersed battles in which speed, maneuverability, and most importantly, reliable communications will be decisive factors.

The system may be incorporated into the army's new tactical plan for laying battlefield communication lines throughout the combat area, it is reported. When placed at points on the connecting main circuits or trunk lines, Digicom acts as an electronic switchboard, automatically seeking out the fastest message path from originating point to destination.

According to the company, should one or several trunks become inoperative, Digicom will simply by-pass the damaged section and re-route the message, using another trunk in the system. Possible message paths are proportionately increased as more main trunks are fed into the overall system. In older communication arrangements, damage to a main trunk meant loss of contact below the break, a situation that could mean disaster in battle.

By use of novel methods enabling many messages to "share" the same line, the switching equipment has reduced the number of crosspoints or connections necessary to carry on 48 simultaneous conversations through each Digicom unit—from nearly 10,000 to less than 500. This "time-sharing" concept has also reduced the number of wire-pairs necessary for each group of 24 telephones from 48 to two.

Fanning out from each Digicom switching facility are local service cables furnishing communication links to field units. Each Digicom unit handles four local loops, with up to 24 telephones connected into the system by each of the four lines. Loops and trunks can be added as necessary to meet requirements for additional telephones and automatic data handling equipment. The basic switching system is not limited to a specific number of channels; 600 or more can be easily added with suitable design modifications.

Designed to operate from a light trailer that could be jeep-mounted for complete mobility, each Digicom unit is completely transistorized and operates on less than 30 watts of power.

Digicom is a digital, as opposed to an analog (standard telephone) system; the audio signal is automatically coded and transmitted as a pattern of pulses, the presence or absence of each

(Please turn to page 46)

MONSANTO POLYETHYLENE formulations are based on long experience in supplying the specialized needs of the Wire and Cable Industry. That's why you can always count on a correct answer to your specific insulation problem, when you call Monsanto Chemical Company, Plastics Division, Springfield 2, Massachusetts.

*OPALON: REG. U.S. PAT. OFF.

Monsanto

MPE 10 medium molecular weight natural, with non-discoloring antioxidant; primary insulation for telephone cable, power cable, control cable, and general insulation use.

11302 medium molecular weight black, with non-discoloring antioxident; for line and drop wire insulation, weather-resistant primary and support wire insulation, general purpose jacketing.

12203 high molecular weight natural, with non-discoloring antioxidant; primary insulation for telephone, power, and control cable; insulation requiring superior toughness, maximum stress crack resistance.

12253 medium molecular weight natural, with non-discoloring antioxidant; for primary insulation for coaxial cable, power cable, telephone cable, and general insulation use.

14202 high molecular weight black, with non-discoloring antioxidant; telephone and power cable jacketing; all jacketing and insulating applications requiring maximum stress crack and weather resistance.

Monsanto has also developed a complete line of Opalon* Vinyl compounds for wire and cable insulation.

Are you receiving your monthly "WIRE RECORDER"? Use coupon to get this useful news bulletin published by Monsanto.

Monsanto Chemical Company,
Plastics Division,
Springfield 2, Mass.

Please place my name on your mailing list to receive free monthly copy of "WIRE RECORDER"

NAME _____ TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____

FOR EVERYTHING YOU NEED

Kellogg is close by with fast, dependable

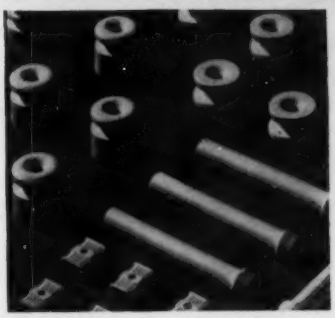
Nuts, bolts, cable, terminals, batteries... you'll find everything it takes to run a telephone company under one roof at Kellogg. Eight completely stocked, conveniently located warehouses are only a phone call away. And when you call Kellogg you're talking with trained, experienced telephone men who understand your needs, know exactly what you require. For telephony's most complete source of dependable equipment, such as shown on these pages, and fast, efficient service... call your Kellogg representative.

KELLOGG Communications Division of IT&T
CHICAGO, ILLINOIS

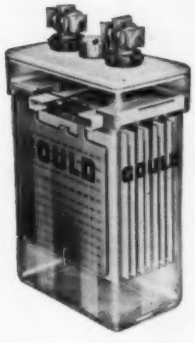
Kellogg Switchboard and Supply Company
6650 South Cicero Avenue, Chicago 38, Illinois
Communications Division of
International Telephone and Telegraph Corporation

The Time-Tested Steel Strand. A ductile, adherent zinc coating, applied by the famous Crapo Galvanizing Process, provides lasting protection against corrosion in INDIANA STEEL & WIRE COMPANY'S Crapo Steel Strand. Minimum maintenance expense.

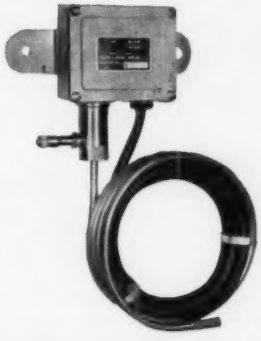
Ready Access Wire Terminal—Reliable's 500 Series Ready Access Wire Terminal answers the need for a wire terminal especially adapted to multi-par distribution wire. Easily installed at any location on the support wire, it is easier to maintain. The neat, flexible neoprene cover gives maximum service life and can be folded back if internal wiring is altered. The neoprene base closes off the bottom of the terminal and provides 24 numbered entry points for drop wires. Up to four 6-pair Reliable Cat. No. 105 Terminal Blocks can be added at any time to make 6, 12, 18 or 24 pair terminals to correspond to the wire size. RELIABLE ELECTRIC COMPANY.



Telephone Insulators manufactured by PORCELAIN PRODUCTS CO., Carey, Ohio. Numbers 6066, 6064, and 6065 meet exacting AT&T specifications for "C," "S," and "T" knobs, respectively. Number 4 and 4-two-groove, as well as numbers 6061 and 6062, are manufactured to the same high quality standards that have established Porcelain Products Co. as a leading supplier of telephone insulators since 1894.



Outstanding Battery Performance is yours when you choose Gould Planté Batteries. Thick, grooved, pure lead positive plates give many years of trouble-free service! Made by GOULD-NATIONAL BATTERIES, INC., the finest money can buy.



PRESSURE GUARD warns of leaks or breaks in the line in pressurized cable systems. The Pressure Guard increases line resistance as a result of detecting a pressure drop from the area that it is protecting. Thus leaks are located quickly saving thousands of man hours. UNITED ELECTRIC CONTROLS COMPANY.

New 48-Volt Battery Charger Line. Completely redesigned Raytheon Recti-Chargers (R) feature no load to full load regulation of ±1%, no tubes, automatic compensation for rectifier aging, no audible hum. Most compact units on the market—single and three phase, output from 30 to 400 amperes. RAYTHEON MANUFACTURING COMPANY.

..EVERY DAY...Call KELLOGG

complete service

Regional Offices and Warehouses:

CALIFORNIA:
23 Broderick Road, Burlingame, Calif., OXford 7-5780.

GEORGIA:
1594 Southland Circle, N. W., Atlanta 18, Ga., SYcamore 4-2441.

ILLINOIS:
4600 So. Tripp Ave. Chicago 32, Illinois, CLiffside 4-4300.

KANSAS:
7th & Sunshine Road, Kansas City 15, Kansas, MAyfair 1-4418.

MINNESOTA:
6100 Excelsior Blvd., Minneapolis 16, Minn. West 9-6715

NEW YORK:
327 North West Street, Syracuse, N. Y., HArrison 2-9251.

OHIO:
1555 West Fourth Street, Mansfield, Ohio, LAfayette 4-6511.

TEXAS:
1515 Turtle Creek Blvd., Dallas 7, Texas, RIverside 7-5191.

EXPORT:
157 Prospect Street, Passaic, N. J., PRescott 3-5100.

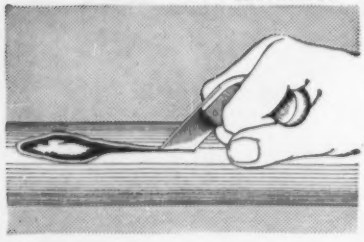
½ x 4" FETTER DRIVE LAG SCREW—The Joslyn J8754P Lag Screw has a special driving point which greatly facilitates getting it started in the pole. After the small point has been imbedded in the wood, the lineman can let go of the screw and take several good swings with his hammer. Safer than ordinary lag screws because it reduces tendency for the lag screw to bounce out of the pole.
JOSLYN MFG. & SUPPLY CO.

Cook Hi-Fi Loading Coils—reduce attenuation, combat frequency distortion and avoid cross talk on existing lines. These coils save installation costs by permitting use of smaller gauge line wire.
COOK ELECTRIC COMPANY.

NEW KLEIN
slitting tool
for all types of control cable

Patents 2398979
2691822

Cat. No. 1558



Here is a new tool developed by Klein, designed to slit insulation from flexible cords, PWC, telephone cable with vinyl or polyethylene jackets and bus drop.

Handle of cast aluminum, light in weight and with convenient grip; knife of tempered tool steel may be sharpened and is easily removed for replacement. This tool slits insulation from a few inches to as many feet as desired swiftly and simply. Does not damage conductors inside weatherproof sheath.

Write for bulletin giving complete information.

FREE POCKET TOOL GUIDE

A free copy of the new Klein Pocket Tool Guide will be sent on request without obligation.

ASK YOUR SUPPLIER

Foreign Distributor: International Standard Electric Corp. New York

Mathias KLEIN & Sons
Established 1857 Chicago, Ill., U.S.A.
7200 McCORMICK ROAD • CHICAGO 45, ILLINOIS

pulse constituting the information carrier. In standard telephone systems, a continuously varying voltage carries the message as an analogy of the audio signal.

A commonplace comparison, ITT states, can be made with standard automobile equipment. The speedometer, an analog computer, measures speed, a continuously varying quantity. The mileage indicator, on the other hand, is a digital computer, numerically recording distance travelled.

Digital methods result in the complete elimination of cross-talk (interference between conversations), and produce signals that do not deteriorate between sending and receiving stations, regardless of intervening distance.

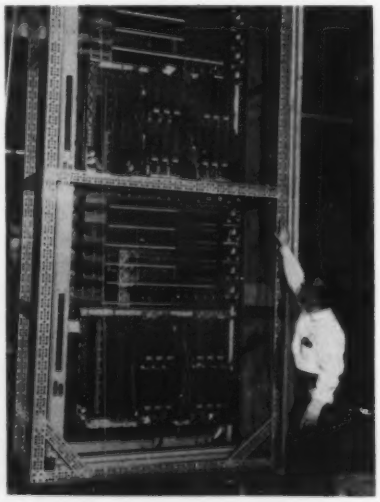
The system is also self-correcting according to ITT. A decoding unit in the sender's handset automatically corrects the code pattern where necessary, so that the party on the other end receives exactly what is spoken. Request NP1162.

•

NEW LAMINATE REPLACING CELLULOSIC REINFORCED MATERIAL—Kellogg Switchboard & Supply Co., communications division of ITT, is now using Glastic Grade TS laminate in three switchboard applications—replacement of cellulosic reinforced material with $\frac{1}{32}$-inch Glastic for jack strip, terminal strip, and fanning strip.

In the jack strip and terminal strip applications, Kellogg reports the Glastic fibre glass polyester meets all the insulation requirements for improved moisture absorption, higher rigidity after heat aging, and good electrical qualities. There were 19 pieces involved in the switch from cellulosic reinforced material to Grade TS.

Kellogg states there also were ma-



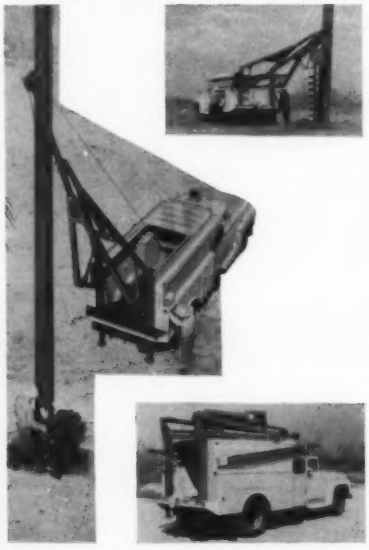
terial and labor savings realized from Glastic's punchability.

In the fanning strip application, the higher impact strength of Glastic permitted a reduction in material thickness from $\frac{1}{8}$ inch to $\frac{1}{32}$ inch, and this in turn permitted punching. The cellulosic reinforced material formerly used required sawing, drilling holes and then chamfering.

Data on Glastic may be obtained by requesting NP1163.

•

HYDRAULIC DERRICK—A new hydraulic derrick, known as the Series PM-10 "Pole-Master" has been announced by the Powers-American Division of McCabe-Powers Body Co.



"The new unit, which replaces the company's widely-used Series PM-1 derrick in the line, has been greatly improved," stated Brooke Daly, company vice president. "Design has been changed for increased strength and efficiency of operation, and an optional hydraulic head sheave extension has been included to permit handling of poles substantially greater in length.

The Series PM-10 is fully hydraulic,

with all operation controlled by levers which are normally installed in rear curbside compartment of the truck body. Power is supplied by a heavy-duty vane-type hydraulic pump driven by a power take-off on the truck transmission.

Maximum rated capacity is 8,000 lbs. Capacity for body-loading is 2,500 lbs. and "down pressure" which can be exerted for digging operations is 1,000 lbs. Operating range exceeds 200 degrees, permitting positioning of the head sheave at any point from stowed position to within 18 inches of ground.

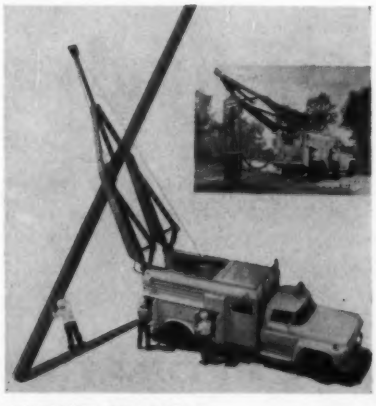
Three sizes are available. The Series PM-10-40 has a maximum head sheave height of 21 feet 2 inches for handling 40-foot poles, the PM-10-55 has 24 feet 6 inches maximum height for handling 55-foot poles and the PM-10-70 has 30-foot height for handling 70-foot poles. Optional hydraulic head sheave extension, available on the PM-10-40 and PM-10-55, increases maximum height to 24 feet 2 inches and 29 feet 2 inches for handling 50-foot and 65-foot poles respectively.

McCabe-Powers states the derrick is ideally suited for use with the company's Series DF-1 "Earth-Master" hydraulic digger which will dig holes up to 20 feet in diameter and 10 feet in depth. Unit shown is installed on a Powers-American Series 550-C line construction body. Request NP1164.

•

HEAVY DUTY HYDRAULIC DERRICK—Production of a new, heavy-duty hydraulically-operated derrick for handling poles up to 70 feet in length also has been announced by the Powers-American Division of McCabe-Powers Body Co.

Designated the Series PM-20 "Pole-Master," this new derrick is stronger and more versatile than ever before, according to Vice President Daly. He said, "The completely re-designed PM-20 combines the best features of preceding models with a number of recent



GENERAL MACHINE PRODUCTS COMPANY, INC.
Old Lincoln Highway at Pa. Turnpike, Trevose, Pa.

Aerial Tents
Cable Benders
Cable Blocks
Cable Lashers
Coaxial Cable Tools
Lashing Wire Clamps and Grips
Portable & Power Reels

Pressure Testing Kit

R S Power Reel

C R Power Reel

D Cable Bender

B, C, D, E & G Cable Lashers

Special Purpose Tools To Specifications

Literature on Request

Over 500 various items of Line Construction Tools, Maintenance & Pressure-Testing Equipment in stock for immediate Shipment

SPECIALIZED COMMUNICATIONS EQUIPMENT SINCE 1918

GMPCO

PWC

TELEPHONE CABLES

For Every Application

RURAL DISTRIBUTION

TYPE 177

Specifically designed for low cost telephone service expansion in growing rural and residential areas.

Available in No. 19 and 22 AWG in conformance with REA Specification PE-15 December, 1958.

Color coded for quick identification and easy splicing.

Eliminates use of crossarms by attaching to pole.

Aerial installations possible where open wire lines cannot be used.

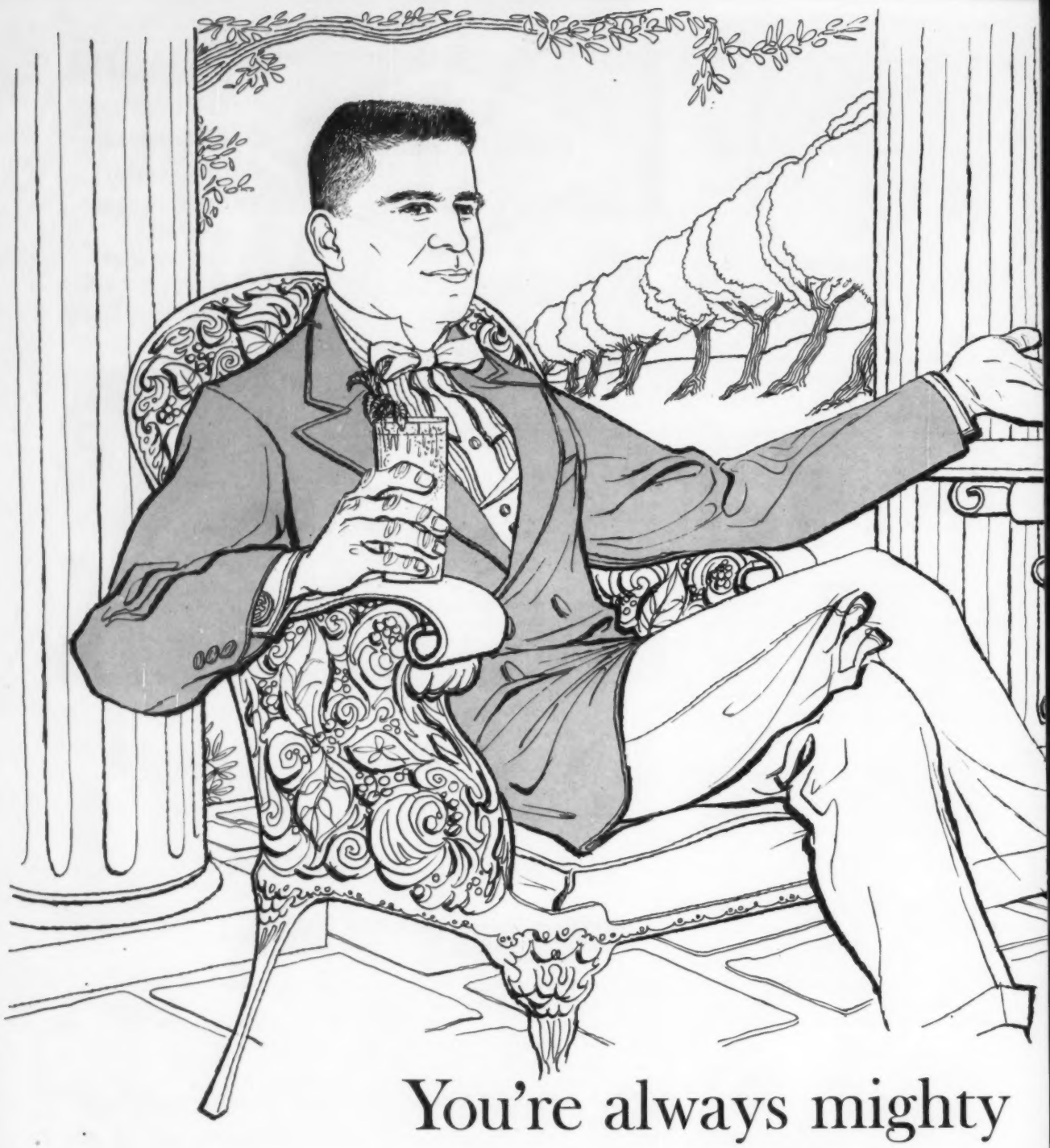
Easy to install because of lightweight, self supporting and long spans.

Ideal for emergencies.

Excellent electrical characteristics from high dielectric strength, low loss, low capacitance polyethylene insulation.

Maximum weather resistance with tough PVC conductor jacket.

THE PLASTIC WIRE & CABLE CORPORATION
JEWETT CITY, CONN.



You're always mighty

The tradition of hospitality for which the South is famous is *our* tradition, too—in Atlanta and in our other supply "plantations" from coast to coast.

We're always mighty pleased to have you call, because we really appreciate your orders for construction materials and supplies more than we can say. We enjoy doing business with you because you're such nice folks. You get the same hospitable reception

STROMBERG-CARLSON

A DIVISION OF **GENERAL DYNAMICS CORPORATION**

ATLANTA: TRinity 5-7467 • **CHICAGO:** STate 2-4235 • **KANSAS CITY:** HArrison 1-6618 • **ROCHESTER:** HUbbard 2-2200 • **SAN FRANCISCO:** OXford 7-3630

welcome!

whether you want a washer—or a carload of cable!

Our warehouse facilities, trained men and huge variety of supplies are at your beck and call. So you keep coming back. It's our pleasure to serve you.

Frank Kasper is one of our Atlanta hospitality specialists.

engineering developments. This has resulted in a lighter, yet stronger, derrick of substantially greater capacity."

The derrick is available in three sizes for handling poles up to 40 feet, 55 feet and 70 feet in length. An optional hydraulically operated head sheave extension (stinger) can be furnished for handling poles of greater length or to aid in placement of transformers. A manual head sheave extension is also available.

An operating arc exceeding 200°, from stowed position to within 18 inches of the ground, permits the use of various types of diggers and speeds threading of winch line, according to Powers-American.

The Series PM-20 is raised and lowered by twin heavy-duty, double-acting precision-honed hydraulic cylinders actuated by a heavy-duty pump driven by a power take-off on the truck transmission. The company states the control valve has a spring-loaded lever which returns to neutral position when released, positively locking oil in cylinders to prevent creeping or "kickback" under load. Controls can be installed in any location, adjacent to controls for other equipment if desired.

Derrick operates under power at all times, can be moved under load and requires only a single drum winch. Does not obstruct cargo area or interfere with closing of body roof, the company reports.

Maximum capacity of derrick is 10,000 pounds with or without optional head sheave extension. Loads up to 2,500 pounds into the body cargo area. Down pressure is 1,000 pounds for digging operations.

For digging straight, clean holes 9 inches to 30 inches in diameter and up to 10 feet 6 inches in depth, the company says the Series PM-20 "Pole-Master" can be equipped with a Powers-American Series EM-2 "Earth-Master" hydraulically-powered digger. Sufficient down-pressure is supplied by the derrick to dig quickly in practically any type soil.

Auger is guided at all times, according to Powers-American, and cannot veer whether used vertically or at an angle. Controls for the digger are normally installed next to derrick controls. Request NP1165.

•

EXTENDED CAPACITY CODE PUNCH—The new Univac card code punch, designed to extend the capacity of the 90-column Alpha-numerical punched-card code, has been announced by Remington Rand Division, Sperry Rand Corp.

The new punch is described as extending the 90-column code from 38

new

Stops

Leakage and Corrosion

The safe low 150°F surface temperature ...®

DAMPP-CHASER

DEHUMIDIFYING HEATER

- For all PBX
- Unattended CDO's
- Central Office Equipment

Maintenance free. The lifetime heating element is sealed in a 3/4" aluminum tube. Inexpensive, standard, 1-1½-2 & 3 foot lengths for equipment wide efficient heat distribution. Safe to place anywhere! Half the operating cost of old fashoned, inefficient, dangerous "hot spot resistor heaters."

NO Chemicals Replacements Worry

NO Fire Hazard Personnel Hazard Equipment Damage

No assembly, comes complete with clips. Simply plug in and forget, never needs attention. Immediate delivery! Field tested and proved by one of the South's largest telephone companies.

5 YEAR WRITTEN GUARANTEE

Phone: OX. 3-8271 or write for prices and full particulars.

MANUFACTURED FOR OVER A DECADE BY

DAMPP-CHASER, INC.

HENDERSONVILLE, NORTH CAROLINA

Affiliate: DAMPP-CHASER, LTD, London, England

combinations—26 alpha, 10 numerical, symbol and space—to 63 combinations or characters.

The additional 25 special character codes make the 90-column code equal to the 7-bit binary Univac code in capacity, and make it possible to utilize the full range of characters of a high-speed printer from punched-card input.

This development, according to Remington Rand, is of particular significance where use of the new Univac solid-state computer is concerned, for this system utilizes the 600-line-a-minute high-speed printer for output. Request NP1166.

•

MICROWAVE POWER WATTMETER—A new calorimetric wattmeter which measures microwave power to extreme accuracies is among electronic instruments manufactured by Sierra Electronic Corp.

The new calorimeter, Model 290A, is reported to be a precision instrument which will measure power with a maximum error of 1 per cent and a probable error of less than 0.5 per cent. This extreme accuracy, according to Sierra, is achieved through advanced design techniques and precise electrical and mechanical construction.

Model 290A includes liquid flow controls, calibration sources and metering circuits. Calibration power up to 1.2 kw is provided by means of a variac and suitable controls.

Accessory instruments for the calorimeter include a new heat exchanger (Model 291A) and a series of dual water loads (Model 287). These units, the company says, are provided either individually or as a complete system with the calorimeter. The heat exchanger includes a fluid pump, radiator and valves, and has a nominal capacity of 2 kw. The dual water loads are provided in SL, S, XB and X bands and, in conjunction with the 290A, comprise a complete power measuring system. Request NP1167.

•

PACKAGED FREQUENCY CONVERTERS — Packaged frequency converting systems have been added by Kato Engineering Co. to its motor generator line.

The compact sheet metal housing is reported to contain all necessary switchgear for both motor and generator with the converter mounted on a structural steel base as an integral part of the base of the cubicle.

The 60 to 400 cycle frequency converter, according to Kato, has an output of 30 kw when operated at 3428 rpm. The generator is rated 30 kva,

unity power factor, 3-phase, 120 volts delta.

The motor-generator set is described as being of single shaft, common frame, two-bearing construction. The unit comes complete and ready for operation with both generator output and motor input lead wires supplied and marked.

The 60-cycle squirrel cage induction motor rating is 45 hp, 208 volts, 3-phase with part winding for starting.

Six lead wires, the company says, have been brought out from the generator to permit wye connection of either 120 or 208 volts or 120 volt single phase connection with up to 20 kw output. The nine-wire motor can be reconnected for 416 volt operation.

Performance features are said to include voltage regulation of ± 1 per cent no load to full load with response time to within 5 per cent of steady state voltage within 0.9 seconds.

The panel has 12-gauge sheet steel dead front hinged doors to permit convenient accessibility to all parts within the cubicle. Kato says controls include a part winding starter and transformers for the motor circuit breakers and a Kato Regociter static voltage regulator for the generator. A separate bench mounted type instrument enclosure includes all necessary line and output indicating meters, selector switches, manual voltage controls, and start and stop buttons. Request NP1168.

IMPACT OF TELEPHONE

Continued from page 25

301.3 per cent since 1939. Business took up 28.3 per cent of all telephones in 1956 and 39.0 per cent in 1939.

Expressed in thousands, manufacturing establishments numbered 1.2 in 1939 and 1.5 in 1900. Employment was 102.0 in 1956; 52.0 in 1939; and 41.3 in 1900.

Expressed in millions of dollars for (a) payrolls and (b) value added by manufacturing we have the following:

(a) 1956, 291.0; 1939, 36.4; and 1900, 17.4. (b) 1956, 571.0; and 1939, 72.6; and 1900, 31.6.

In 1958, in thousands, telephones totaled 325.5, with 98.1 for business and 254.4 for homes.

Personal income was 2,093 million dollars in 1957.

The 1958 employment was as noted:

Type of Employment	*Percentage Distribution*
Total employment	100.0
Mining	1.1
Contract construction	4.4
Manufacturing	28.9
Transportation and other public utilities	7.0
Trade	23.9
Finance, insurance and real estate	2.9
Service and misc.	10.7
Government	21.1

Louisiana

The per capita income was 1,444 dollars for 1956 and 357 dollars in 1939, an increase of 304.4 per cent. Both expressed in millions, (a) population and (b) households: (a) 1956, 2.9 and 1939, 2.3, an increase of 23.8 per cent; (b) 1956, 0.8 and 1939, 0.5, an increase of 38.8 per cent.

Telephones, also in millions, in 1956 were 0.8, with 27.6 per cent for business and 1939, 0.1, with 38.7 per cent for business. The increase in totals was 326.3 per cent.

Number of manufacturing establishments in thousands: 1.7 for 1939 and 1.8 for 1900. Employment in thousands: 1956, 144.0; 1939, 87.7; and 1900, 44.4.

(a) Payrolls and (b) value added by manufacturing, both in millions of dollars, were: (a) 1956, 587.0; 1939, 85.2; and 1900, 17.6; (b) 1956, 1,494.0; 1939, 198.5; and 1900, 35.9.

In 1958, there were 884.3 thousand telephones, with 241.8 thousand for business and 642.5 for home use.

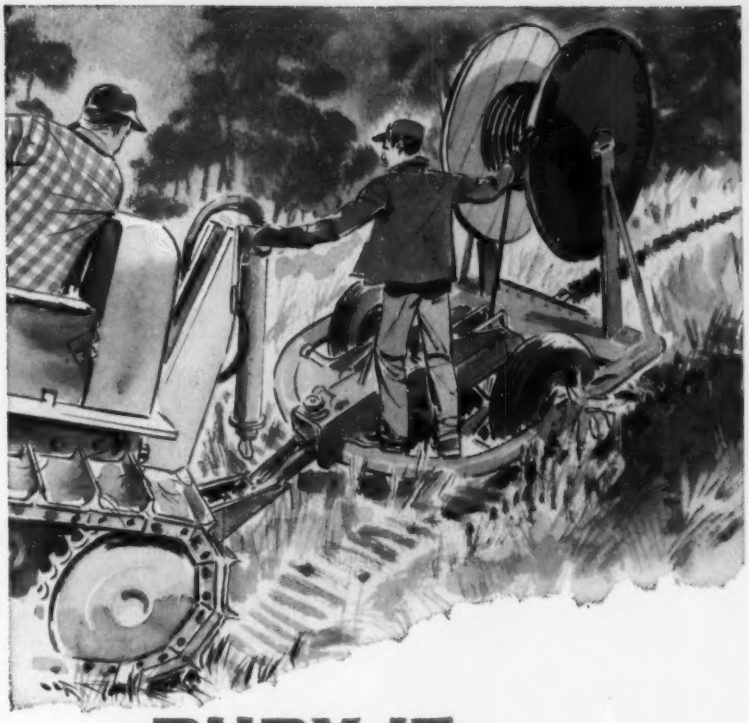
The personal income in 1957 was 4,804 million dollars.

Employment in 1958 conformed to this pattern:

Type of Employment	*Percentage Distribution*
Total employment	100.0
Mining	5.8
Contract construction	8.5
Manufacturing	18.6
Transportation and other public utilities	11.1
Trade	24.2
Finance, insurance and real estate	3.6
Service and misc.	11.6
Government	16.6

Arkansas

The per capita income in 1956 was 1,088 dollars and in 1939 it was 242



BURY IT
FORGET IT

Whitney Blake TELECABLE for Direct Burial, is made to last, to withstand the most "unfriendly" soil conditions and to give long, uninterrupted service underground.

It is quality that makes for true economy . . . that's why we can say "bury it and forget it."

WB TELECABLE — Type DB
Complies with REA
Specifications PE-23

Write for NEW free Bulletin T-5

WB WHITNEY BLAKE CO.

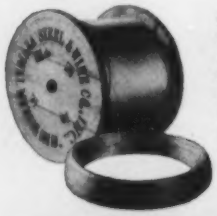
Telephone CHestnut 8-5515
TWX: NH 84

NEW HAVEN 14, CONNECTICUT

Those who design, build and maintain aerial telephone cable lines will find the technical information in this manual both pertinent and useful.

The sag and tension data cover three sizes of "Utilities Grade" strand when used as messenger to support plastic-sheath or lead-sheath cable. These data will be helpful in determining the size of strand to be used for a particular weight of cable and span length, and in answering other questions relating to design problems.

This Manual will be mailed without obligation to all interested telephone men. Ask for Manual No. MS-58.



Crapo Galvanized Steel Strand (for both messenger and guys) is available in all standard sizes and grades and in Class A, B and C coatings.

INDIANA

STEEL & WIRE CO., INC.

Muncie, Indiana

dollars, an increase of 349.5 per cent.

(a) Population and (b) households expressed in millions: (a) 1956, 1.7; and 1939, 1.9, a loss of 8.8 per cent; (b) 1956, 0.5 and 1939, 0.4, a gain of 2.4 per cent.

Telephones, also in millions: 1956, 0.3 of which 30.2 were for business and in 1939, 0.1 of which 39.2 were for business. The gain in totals was 232.3 per cent.

The following in thousands: Number of manufacturing establishments in 1939, 1.1 and in 1900, 1.7. Employment was 92.0 in 1956; 41.1 in 1939; and 33.0 in 1900.

The following in millions of dollars: (a) payrolls and (b) value added by manufacturing. (a) 1956, 272.0; 1939, 33.0; and 1900, 11.4. (b) 1956, 619.0; 1939, 66.4; and 1900, 21.6.

In 1958, there were, in thousands, total telephones of 356.6, with 105.9 for business and 250.7 for homes.

The personal income in 1957 was 2,035 million dollars.

Employment in 1958 followed this pattern:

Type of Employment	*Percentage Distribution*
Total employment	100.0
Mining	2.1
Contract construction	5.4
Manufacturing	26.1
Transportation and other public utilities	8.6
Trade	24.0
Finance, insurance and real estate	3.2
Service and misc.	11.6
Government	19.0

(To Be Continued)

REA APPROVES TEN LOANS

Concluded from page 31

The borrower proposes to purchase sites and construct new automatic central offices at both locations. The Darien building will also house commercial office facilities. A portion of the funds will refinance the borrower's existing indebtedness.

R. V. Jackson is president and manager of the Darien company.

•

The Harper County Rural Telephone Association, Anthony, Kan.; $109,000; July 30.

The borrower plans to improve service for 109 subscribers of the Geuda Springs Telephone Co. which it has recently acquired. Initial service will be furnished to 46 subscribers.

A new automatic central office is scheduled to replace the existing magneto facilities at Geuda Springs. Provision is made in the loan to reimburse the borrower for the Geuda Springs company acquisition.

REA loans to this borrower now total $880,000 which will enable it to furnish new and improved service to 1,609 subscribers. The completed system will consist of eight exchanges, of which seven are in operation furnishing dial service to approximately 910 subscribers.

Dean Hughes is president and E. J. Salter is manager of the Harper County association.

•

Capitol Telephone Co., Hickman, Neb.; $220,000; July 30.

The loan funds will finance improved telephone service for 331 subscribers and initial service to 32 subscribers. The subscribers who will get improved service are now served by the Alvo Telephone Co. and the Eagle Independent Telephone Co. The borrower has recently acquired these two companies, which furnish magneto service, and will be reimbursed for the acquisitions by this loan.

New construction planned by the borrower includes an automatic central office at Eagle. A portion of the loan funds will be used to complete the authorized system.

REA loans to the borrower, now totaling $736,000, will enable it to furnish new and improved service to 1,287 subscribers. The system, when complete, will consist of five exchanges.

Walter Paschold is president and David Ellis is manager of the Capitol company.

AT&T and Japanese Agree On Hawaii-Japan Cable

The Long Lines Department of the American Telephone & Telegraph Co. confirms that AT&T has agreed in principle with the Japanese radio and cable company, Kokusai Denshin Denwa Co., Ltd., to build a submarine telephone cable linking Hawaii and Japan.

Expected service date for the cable to be in operation is the mid-1960's, or approximately 1965.

OK Ill. Party Line Law

Governor William G. Stratton recently signed into Illinois law a bill which makes it a misdemeanor for a party line user to refuse to give up a line in an emergency (TELEPHONY, July 18). The same law also makes it a misdemeanor for any person to pretend that an emergency exists in order to get the use of the party line.

BLAST OFF!!

another TIF*

*Telephone Industry First

from...

the dynamic force in the telephone industry

NORTH ELECTRIC COMPANY

GALION, OHIO

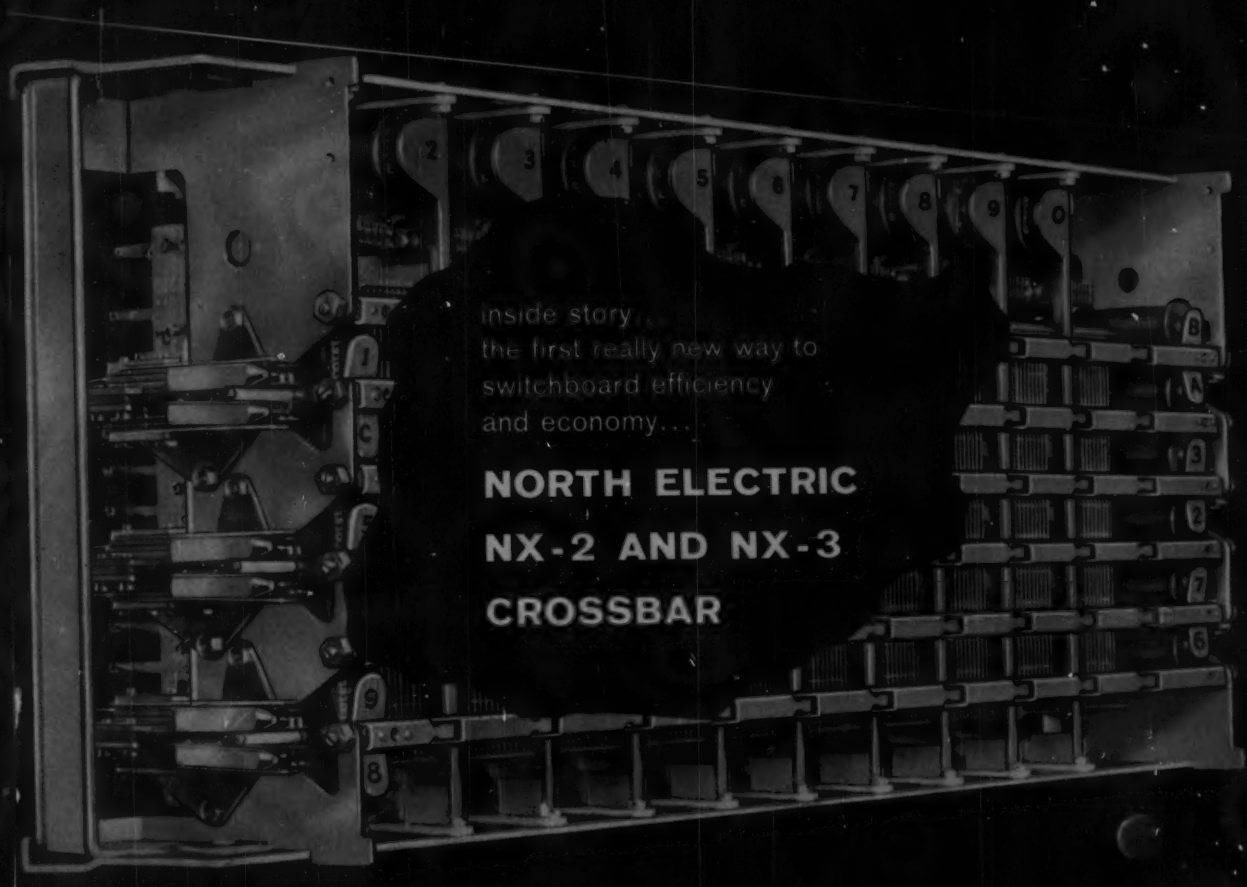
NORTH

1884 1959 75TH AND GREATEST YEAR

NOW

north crossbar for

NX-2 & NX-3 modular switchboards
designed to provide the proven efficiency,
traffic handling capacity, flexibility of
NORTH CROSSBAR SWITCHING SYSTEMS
FOR EVEN THE SMALLEST EXCHANGES



small exchanges

Another "Telephone Industry First" from North, the company that has pioneered the most significant advances in telephony for 75 years—NX-2 and NX-3 "Modular Crossbar" for smaller Independent Operating Companies. All the inherent advantages of North Crossbar switching, proven in scores of larger exchanges, have been engineered into two new systems that represent the biggest news to the Independent Telephone Industry since the announcement of the first automatic exchange.

Naturally, such news could come only from . . .

the dynamic force in the telephone industry

NORTH ELECTRIC COMPANY

GALION, OHIO

NORTH 1884 1959 75TH AND GREATEST YEAR

The needs of Independents across the nation prompted North's design of two new automatic telephone systems with the advantages and flexibilities of "big city" Crossbar —yet fully meeting small office requirements of . . . lowest cost . . . short delivery . . . absolute minimum maintenance . . . compatibility with DDD network concepts . . . standardized components for inexpensive expansion.

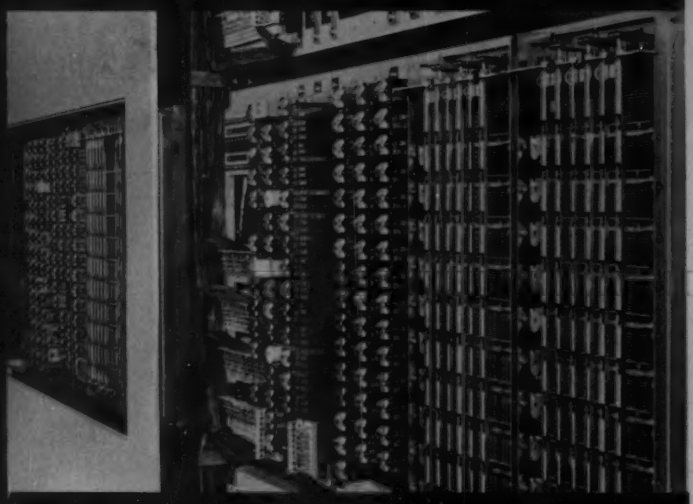
New NX-2 or NX-3 Crossbar is *North's* answer!

If you have offices in the range of 30 to 3000 lines . . .

North NX-2 or NX-3 Crossbar is *your* answer!

north crossbar for

NX-2 & NX-3 modular switchboards designed to provide the proven efficiency, traffic handling capacity, flexibility of NORTH CROSSBAR SWITCHING SYSTEMS FOR EVEN THE SMALLEST EXCHANGES



new standardized modular design

. . . easy to install . . . easy to maintain . . . simple, inexpensive additions in multiples of 30 lines.

North's advanced design concept offers for the first time a "package" off-the-shelf telephone system designed specifically for small and medium size offices.

A typical 90 line system is made up of just 7 different standard and one custom trunk modular units—all fully interchangeable with like units. This permits easy exchange of modules to other offices and simple addition of standard modules for inexpensive expansion.

small exchanges

Another "Telephone Industry First" from North, the company that has pioneered the most significant advances in telephony for 75 years—NX-2 and NX-3 "Modular Crossbar" for smaller Independent Operating Companies. All the inherent advantages of North Crossbar switching, proven in scores of larger exchanges, have been engineered into two new systems that represent the biggest news to the Independent Telephone Industry since the announcement of the first automatic exchange.

Naturally, such news could come only from . . .

the dynamic force in the telephone industry

NORTH ELECTRIC COMPANY

GALION, OHIO

NORTH

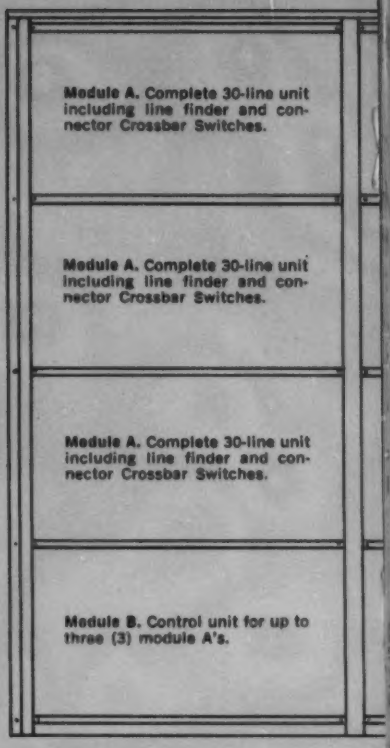
1884 1959 75TH AND GREATEST YEAR

unique modular design provides new compactness and economy

Compact in size, a typical 90 line board occupies a space of approximately 144" long by 100" high by 8¾" deep. 10 to 12 modules fill this space (depending upon requirements). Each module is 24⅝" high by 46" wide, installed four to a bay in three bays. (Can be installed five modules to a bay, further reducing floor space.) Modules are factory-wired and tested to the module cross-connect terminal block—saving hours of installation expense. Installation wiring is limited to cross-connect of modules.

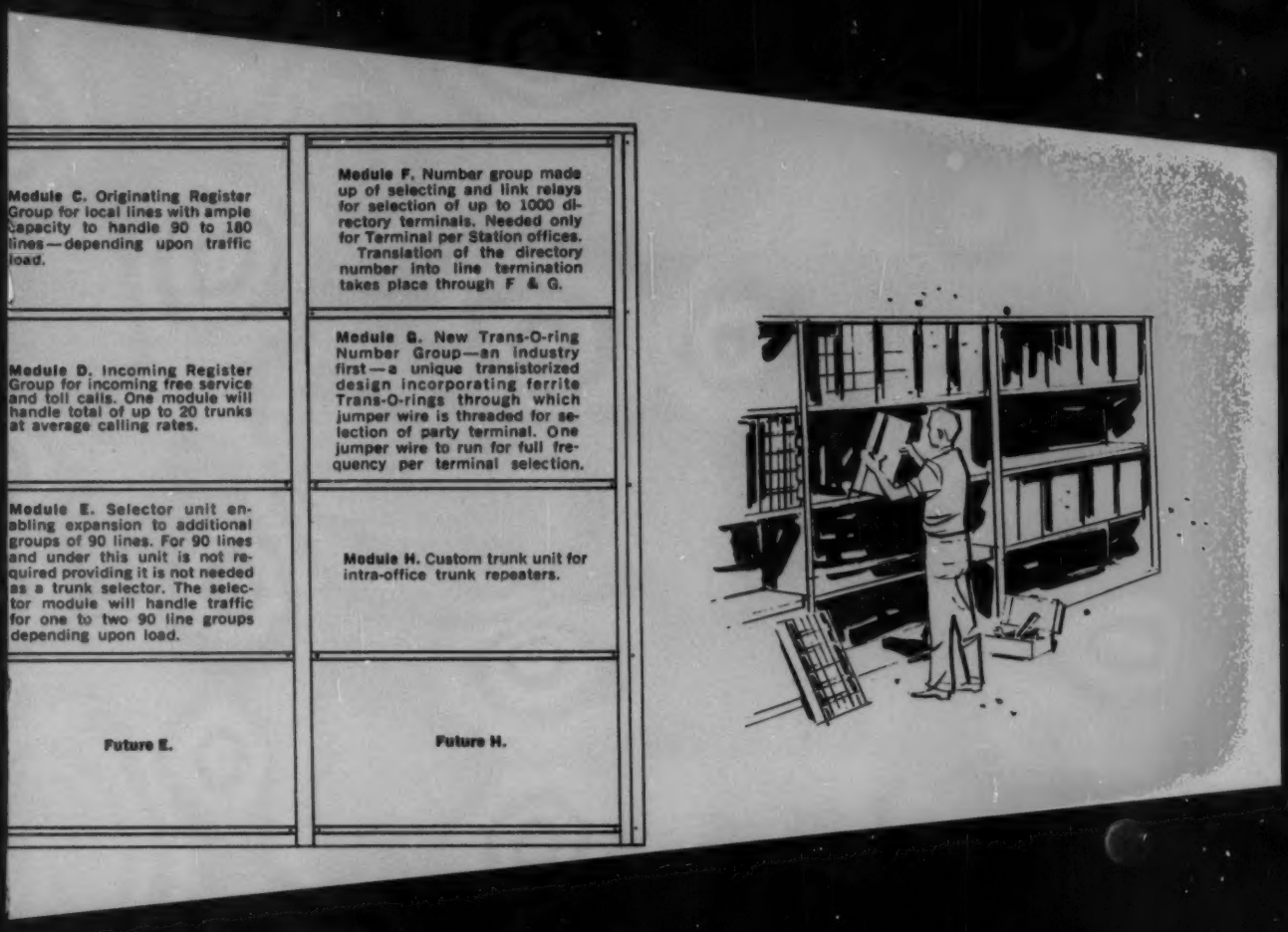
The flexible design permits shorter heights by installation of units 3 high and extending to four bays in width, if necessary.

As your exchange grows, the economies in space increase. In many cases, initial common modules will not need to be duplicated to accommodate sizable expansion.


Module A. Complete 30-line unit including line finder and connector Crossbar Switches.
Module A. Complete 30-line unit including line finder and connector Crossbar Switches.
Module A. Complete 30-line unit including line finder and connector Crossbar Switches.
Module B. Control unit for up to three (3) module A's.

north crossbar for

NX-2 & NX-3 modular switchboards
designed to provide the proven efficiency,
traffic handling capacity, flexibility of
NORTH CROSSBAR SWITCHING SYSTEMS
FOR EVEN THE SMALLEST EXCHANGES


Module C. Originating Register Group for local lines with ample capacity to handle 90 to 180 lines—depending upon traffic load.
Module D. Incoming Register Group for incoming free service and toll calls. One module will handle total of up to 20 trunks at average calling rates.
Module E. Selector unit enabling expansion to additional groups of 90 lines. For 90 lines and under this unit is not required providing it is not needed as a trunk selector. The selector module will handle traffic for one to two 90 line groups depending upon load.
Future E.
Module F. Number group made up of selecting and link relays for selection of up to 1000 directory terminals. Needed only for Terminal per Station offices. Translation of the directory number into line termination takes place through F & G.
Module G. New Trans-O-ring Number Group—an industry first—a unique transistorized design incorporating ferrite Trans-O-rings through which jumper wire is threaded for selection of party terminal. One jumper wire to run for full frequency per terminal selection.
Module H. Custom trunk unit for intra-office trunk repeaters.
Future H.

small exchanges

Another "Telephone Industry First" from North, the company that has pioneered the most significant advances in telephony for 75 years—NX-2 and NX-3 "Modular Crossbar" for smaller Independent Operating Companies. All the inherent advantages of North Crossbar switching, proven in scores of larger exchanges, have been engineered into two new systems that represent the biggest news to the Independent Telephone Industry since the announcement of the first automatic exchange.

Naturally, such news could come only from . . .

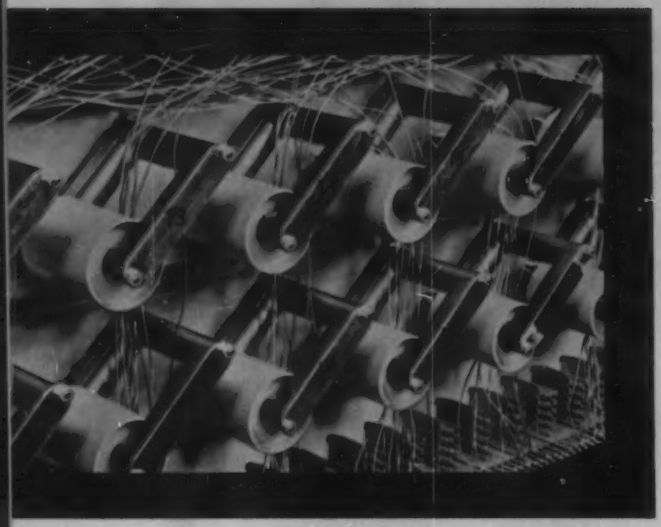
the dynamic force in the telephone industry

NORTH ELECTRIC COMPANY

GALION, OHIO

NORTH

1884 1959 75TH AND GREATEST YEAR



it costs less — to buy the best

Incorporating the tried and proven benefits of crossbar switching, North's new NX-2 or NX-3 Crossbar offers incomparable advantages:

1. *New Modular Design* permits easy and inexpensive expansion in multiples of 30 lines.
2. *New Transistorized Trans-O-ring Number Group* offers advantage of permanent directory number assignment without any restriction whatsoever. Full flexibility in relocating lines with single wire control — (only one wire has to be moved in the transistorized Trans-O-ring number group to relocate a directory number).
3. *Terminal per station* with full ringing frequency available to any terminal.

north crossbar for

NX-2 & NX-3 modular switchboards
designed to provide the proven efficiency,
traffic handling capacity, flexibility of
NORTH CROSSBAR SWITCHING SYSTEMS
FOR EVEN THE SMALLEST EXCHANGES

4. *Only with the Crossbar Number Group* can every subscriber number be assigned to any connector terminal. This allows full flexibility in distributing traffic loads without changing numbers.
5. *100% automatic intercept* for toll and local calls.
6. *Register—Sender with translation optional* for tandem offices wherever alternate coding or routing is required or desired.
7. *100% line Lock-out* standard feature.
8. *No consecutive terminal assignment is needed for PBX* lines. Eliminates number and line reserve problems.
9. *Easily accommodates modern equipment of today* and electronic equipment of tomorrow, including toll ticketing and multi-frequency signaling on toll as well as local lines.
10. *Automatic reverting call identification* requires no special dial code or operator intercept. Switching equipment automatically recognizes this call.
11. *Minimum maintenance*—virtually no moving parts to wear out or maintain. Crossbar eliminates the heavy mechanical wear that is attendant to motor-driven or stepping-type selector switches.

small exchanges

Another "Telephone Industry First" from North, the company that has pioneered the most significant advances in telephony for 75 years—NX-2 and NX-3 "Modular Crossbar" for smaller Independent Operating Companies. All the inherent advantages of North Crossbar switching, proven in scores of larger exchanges, have been engineered into two new systems that represent the biggest news to the Independent Telephone Industry since the announcement of the first automatic exchange.

Naturally, such news could come only from . . .

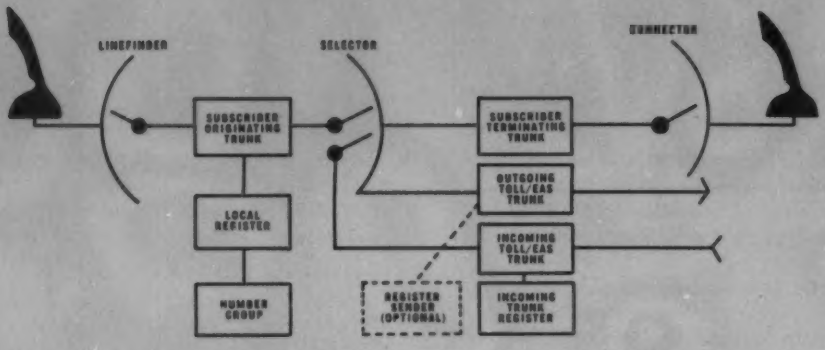
the dynamic force in the telephone industry

NORTH ELECTRIC COMPANY

GALION, OHIO

NORTH

1884 1959 75TH AND GREATEST YEAR



Cutover or expand with NX-2 or NX-3 now for unexcelled small office efficiency. Don't put off your additions or cutover to new equipment another day. With North Crossbar's modular flexibility, you can now add new efficiency to your office at unmatched low cost. And you'll find everything you need in North's engineering and training service . . . providing the most advanced telephone system in the world for unexcelled service.

For technical information consult your nearest North Staff Engineer or write —

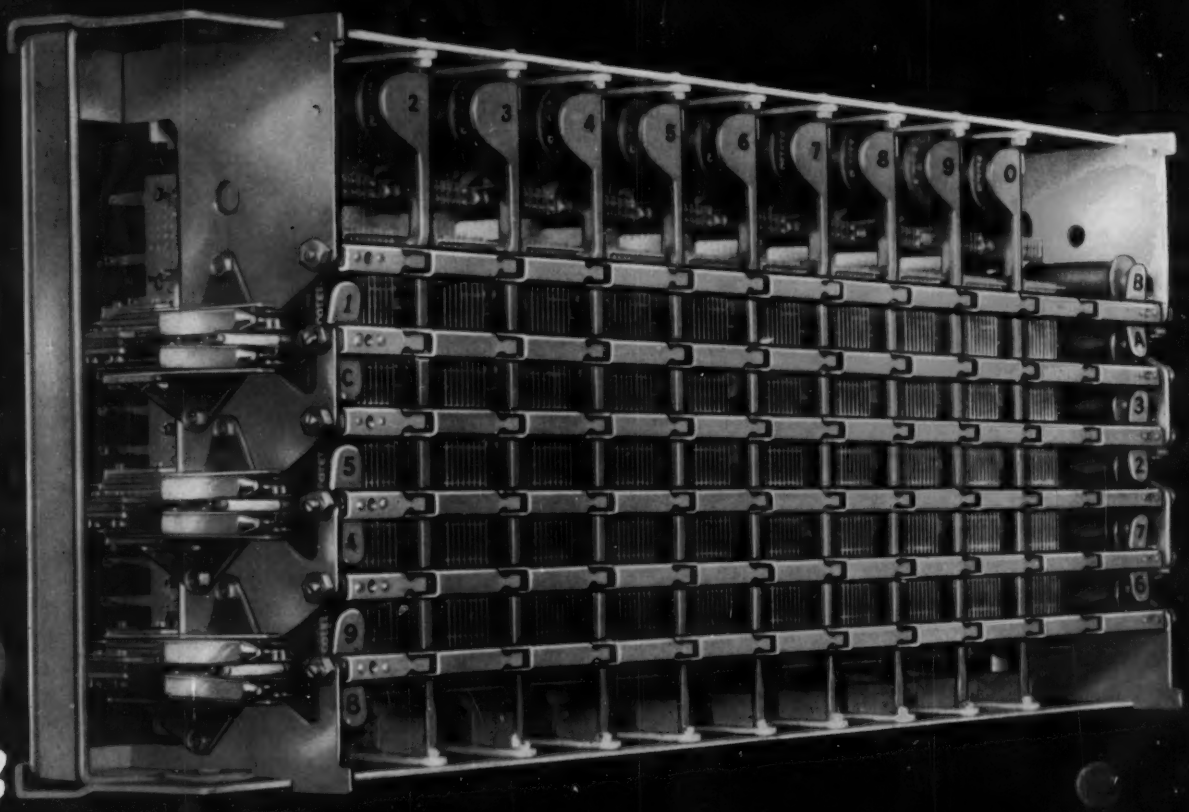
the dynamic force in the telephone industry

NORTH ELECTRIC COMPANY

GALION, OHIO

north crossbar for

NX-2 & NX-3 modular switchboards
designed to provide the proven efficiency,
traffic handling capacity, flexibility of
NORTH CROSSBAR SWITCHING SYSTEMS
FOR EVEN THE SMALLEST EXCHANGES



small exchanges

Another "Telephone Industry First" from North, the company that has pioneered the most significant advances in telephony for 75 years—NX-2 and NX-3 "Modular Crossbar" for smaller Independent Operating Companies. All the inherent advantages of North Crossbar switching, proven in scores of larger exchanges, have been engineered into two new systems that represent the biggest news to the Independent Telephone Industry since the announcement of the first automatic exchange.

Naturally, such news could come only from . . .

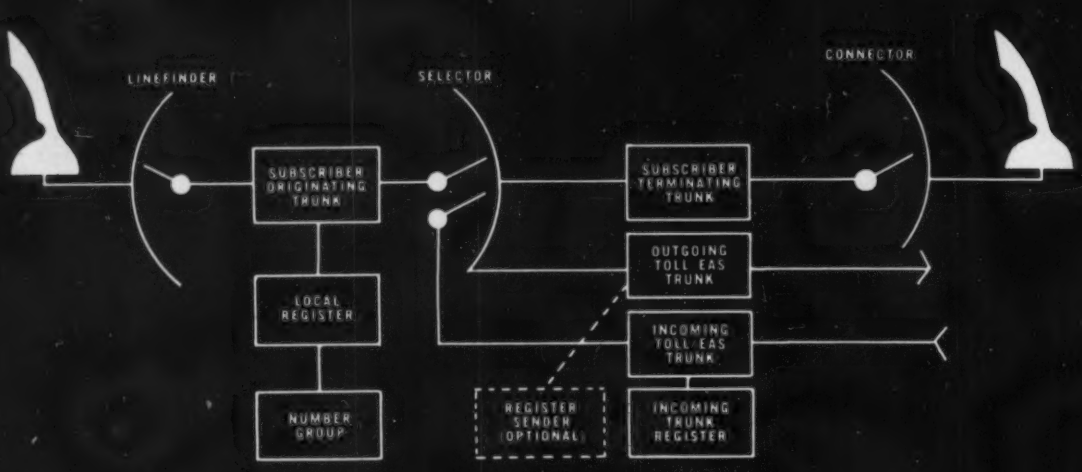
the dynamic force in the telephone industry

NORTH ELECTRIC COMPANY

GALION, OHIO

NORTH

1884 1959 75TH AND GREATEST YEAR



North's modular design of the new small crossbar systems marks a new step forward in providing the smaller Operating Companies with the most advanced switching equipment in the world in the most economical package.

Module A. Complete 30-line unit including line finder and connector Crossbar Switches.	**Module C.** Originating Register Group for local lines with ample capacity to handle 90 to 180 lines—depending upon traffic load.	**Module F.** Number group made up of selecting and link relays for selection of up to 1000 directory terminals. Needed only for Terminal per Station offices. Translation of the directory number into line termination takes place through F & G.
Module A. Complete 30-line unit including line finder and connector Crossbar Switches.	**Module D.** Incoming Register Group for incoming free service and toll calls. One module will handle total of up to 20 trunks at average calling rates.	**Module G.** New Trans-O-ring Number Group—an industry first—a unique transistorized design incorporating ferrite Trans-O-rings through which jumper wire is threaded for selection of party terminal. One jumper wire to run for full frequency per terminal selection.
Module A. Complete 30-line unit including line finder and connector Crossbar Switches.	**Module E.** Selector unit enabling expansion to additional groups of 90 lines. For 90 lines and under this unit is not required providing it is not needed as a trunk selector. The selector module will handle traffic for one to two 90 line groups depending upon load.	**Module H.** Custom trunk unit for intra-office trunk repeaters.
Module B. Control unit for up to three (3) module A's.	**Future E.**	**Future H.**

For information on your North NX-2 and NX-3 Crossbar Switchboards, contact your North Staff Engineer or write—

the dynamic force in the telephone industry

NORTH ELECTRIC COMPANY

GALION, OHIO

NORTH

1894 1969 75TH AND GREATEST YEAR

BANDED LOCAL RATES

Continued from page 22

cant differences in the rates in different bands.

Bands should be made broad enough to avoid the probability that many exchanges will grow out of their bands within a short period of time.

Easily Explained

An even pattern of progression has the distinct advantage of being easily explained to the subscriber body and also tends to avoid the question of discrimination. An even more important consideration is to establish rate-bands so that exchanges of about the same size, which subscribers think of as similar, fall within the same group. The size of the local calling area of the individual exchanges does, however, govern the proper band. There have been cases when overlapping band limits were established. This is undesirable and not recommended because such an arrangement raises the question of judgment as to which rate should apply and is considered as being discriminatory and unfair.

Exchanges are usually assigned to rate-bands at the time of a rate adjustment and often continue in the same rate-band until the next general rate change. Since an extended period of time may elapse between general rate changes and because the rate of growth may vary between exchanges, there is a tendency for exchange grouping to get out of line with existing conditions. Such a discrepancy is inconsistent with the banding principle and rates are no longer commensurate with the service received. It is incumbent upon all companies to keep this situation under review and from time to time seek assistance from the commission in correcting those cases which have become decidedly out of line.

Fairness to all subscribers requires that each exchange be placed in its proper band and that the band rates be applied without exception throughout the company.

Shift Bands Quickly

Where exchange characteristics and service needs fit into the banding pattern, yet "off schedule" rates apply for historical reasons, it is most desirable to make the adjustment to the proper bands as soon as possible. In this category are exchanges taken over by another company and the rates should be adjusted to the new company's schedule as soon as practicable. When cases arise where rates in certain exchanges have been so far out of line that complete and proper adjustment at one time to the company's banding schedule

BETTER-TRAINED OPERATORS ...YOURS AT LOWER COST!

with LCR TOLL OPERATOR TRAINING TURRETS

7 AND 10 DIGIT TYPES

LCR-7D FOR ⅗ NUMBERING

LCR-10D FOR DIRECT DISTANCE DIALING

LCR Toll Operator Training Turrets are a *complete* training facility. With them, there's no need for your trainees to handle customer calls — you completely eliminate adverse customer reaction to training procedures.

LCR Turrets are designed for use at the regular positions at which operators will sit when trained — and are identical equipment.

Through these turrets, your training supervisor can initiate any type of call to the trainee — difficult and unusual circumstances can be instructor-created — speed and accuracy drills are readily conducted.

LCR Turrets provide *positive* indication of trainee action — step by step, digit by digit — on the bank of lamps on the turret face. They permit *demonstration* of error, not just verbal explanation.

Your LCR Turret-trained operators will step into actual service faster — with efficiency and confidence. *And, faster-trained operators, means lower training costs.*

Write or call for detailed information

BUTELCO

THE BUCKEYE TELEPHONE & SUPPLY COMPANY

1250 Kinnear Road — Columbus 21, Ohio

Telephone — HUdson 8-0655 (Area Code 614)

Stewart

TEST EQUIPMENT

Locates Trouble FAST

COMMUNICATION TEST SET

Enables Carrier and Line Check at both 1000 Cycles and Carrier Frequency.

Set consists of TRANSISTOR OSCILLATOR Model J, DB METER Model K, Case and Leads.

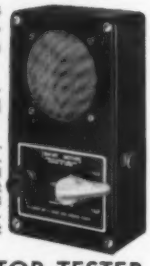
TRANSISTOR OSCILLATOR MODEL J—Voltage output, 0, —13, —16 DBM Frequency, 1000 Cycles; Output Impedance, 600 Ohms; Power, Self-contained 700 hour mercury battery. Stable frequency and voltage.
DB METER MODEL K—in 4 ranges from —20 to +42 DBM. DB Scale, red; 1, 5, 25, 125 Volts. Scale Black. Frequency response, up to 600 k. c. Minimum impedance, 18 K Ohms. Self-contained loads, 150 and 600 ohms. LEATHER CASE with space for Lead Sets.

COMMUNICATION UNIT

MODEL M — Two Units make a complete intercom system. Each one a master unit.

Enables point of work communication in checking and aligning equipment.

Each a transistor powered amplifier with combination transmitter-speaker, self contained batteries and switching. Unit puts +3 DB on line, —12 DB from line puts out sound sufficient to be heard many feet distant.



STEWART LOCATOR TESTER

MODEL A—The complete Unit for locating grounds, shorts, wet spots and other faults in cables. In addition will locate and determine the depth of buried pipe or conductor.

SPEED CABLE TESTER RESULTS by using the EXPLORING COIL AMPLIFIER MODEL E. Increases headphone tone more than 100 times. Pocket size.

STEWART BROTHERS
Division of Instrument Laboratories
315 W. WALTON PL., CHICAGO 10, ILL.

would not seem practicable, subsequent general rate changes may furnish an opportunity to bring them on to their proper schedule.

In order to achieve the basic purpose of banding rates, the trend of rate levels between the groups is based more upon the value of service than upon the cost considerations. This must be, because only in this way can maximum development be achieved and satisfactory quality of service be obtained in small exchanges and rural areas. The value of service, particularly to business customers, is enhanced by the continued development in surrounding trade areas.

The fundamental advantage of the state-wide basis is that it permits the maximum leeway in the design of rate schedules so that, while meeting the over-all revenue requirements, it also promotes the eight rate objectives previously mentioned.

The state-wide basis permits more people to have better service at a reasonable price, because the schedules are prepared with this objective in mind rather than having to meet the revenue requirements of each exchange separately. Also, under the banding basis, charges are fair and reasonable because subscribers pay like charges for like amounts of service, which tends to further satisfy subscribers.

In addition to providing the subscriber with service at a reasonable rate, the state-wide or banding system of rate schedules, has other advantages in that it makes the regulatory processes much less cumbersome to the state, more workable for the company, and provides more service to the subscriber.

YOUR JOB OBJECTIVE

Continued from page 26

advancement. There are many mediums through which a man may improve his educational status. An unwavering desire for self-improvement or development is the key to the extent of the advancement one will make. Management may provide stimulation and opportunity, but when all is said and done, the man, himself, must assume the full responsibility for his own growth. College evening programs, seminars and company training activities offer the average man of inadequate education a world of opportunities.

A man's standards of performance should be set high. When the target objective becomes too indistinct or too narrow, he will perform in a half-hearted manner. The goal he sets must be clear in his mind and inclusive enough to attain the objective. Each move he makes must reinforce those

WHAT'S NEW AT

SUTTLE

QUALITY

Telephone Directories from Suttle Directory Company

Write or call us on our *complete* service — planning — ad sales — compiling—layout—printing. Thirty years of experience guarantees you higher revenue — better public relations.

Your telephone directory represents *you* — *your* company — *your* service. It is read—seen—handled—daily by *your* customers. Your directory, next to good service, is the *most important product you have.* Check the Suttle Directory Company's profitable *new* plan *today.* Write or call Basil Lehigh, manager, at Lawrenceville, Ill. for full information and no-cost survey of your directory.

Low Cost Printing

Printed forms, carbonized forms, envelopes, bills, toll tickets, REA-forms —padded or loose-leaf, and specialty printing. Write for our priced stock list of printed forms available for immediate delivery. Send your paste-up or layout on any form of envelope to the Suttle Printing Division at Lawrenceville, Ill. for prompt, money saving quotation. We've been printing telephone forms at Suttle for 45 years and will guarantee the *best* prices, and quality available anywhere. Write us *today.*

SUTTLE DIRECTORY COMPANY

401 N. 15th St., Lawrenceville, Ill.
Phone: Lawrenceville 782
135 S. La Salle St., Chicago 3, Ill.
Phone: DEarborn 2-3108

that have gone before and those that are ahead. If this is not done, his castle may fall down at the first gust of adversity, as if it was made of cards.

Think of Over-all Enterprise

People who supervise a business must think in the terms of an over-all enterprise. The man who seeks to better his job must always produce a better performance in the job he is on. When he does this he is developing his capabilities and preparing himself for bigger responsibilities which means a bigger job.

It is only a half-truth that time lost can never be redeemed, because, by redoubling their energies, many men have regained their lost prestige and recouped their losses. One must sincerely believe in his ambitions and plan his future carefully, because sketchy outlines of things most prized, or things most feared, often become the framework for full-blown beliefs.

Some time look at a picture of a drawing room in the home of an early ancestor. It looks funny, doesn't it? But don't sell it short. Even though it is an odd arrangement when compared to the present-day room, it is a scene typical of the American home in the early days. Perhaps, we shall have other eras as good or even better. But, be that as it may, we do not enjoy a period so filled with peace, comfort and freedom from fretful worry, and so rich in security, as our grandparents enjoyed.

Perhaps, the owner of this old-time drawing room had only a small income, compared to today's larger salaries. While he may have been a man well thought of in his community, he was not wealthy. But, he had a comfortable home and he saved money. Best of all, those savings were not haunted by the fear of ruinous inflation and a steady loss in value.

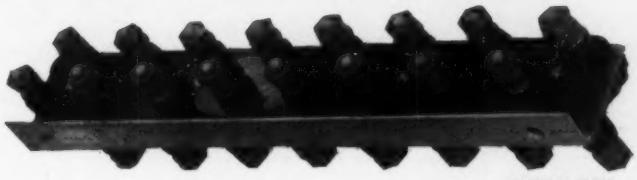
Should Plan Future

The job opportunities of grandfather's day were below the level of today. The airplane, electronics, television, radio, atomic submarines, and many other accomplishments, were hardly a gleam in the scientist's eye. Today, these advancements are taken as commonplace and they have opened a wealth of opportunities for the young man who has the patience, perseverance and courage to go after them.

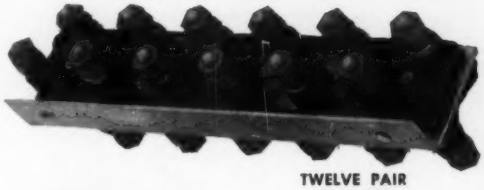
Plan your future carefully, young man. Do not resent criticism—you need it; everyone needs it. Without criticism you will never know yourself or rid yourself of job-retarding habits. You cannot improve yourself without it. Do not let adversity get you down. Set your sights on the job you want

CEECO **IT'S NEW!** CEECO

CEECO NON-PROTECTED READY MOUNT TERMINAL ASSEMBLIES for all types direct buried plastic wire and cable terminals and CEECO Lug-3 parkway terminals

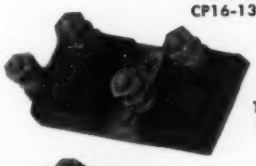


SIXTEEN PAIR
CP16-136

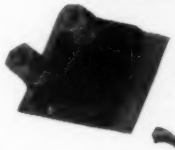


TWELVE PAIR
CP16-135

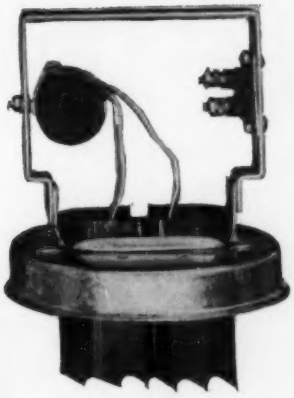
SIX PAIR
CP16-134



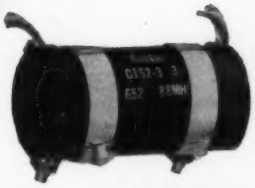
TWO PAIR
CP16-133



ONE PAIR
CP16-137



CEECO
LUG-3 TERMINAL

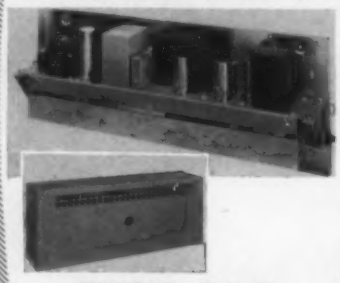


C152-3
LOADING COIL
ASSEMBLY

Write us for assistance on your loading problems
CEECO loading coils are sold by your telephone equipment supplier

COMMUNICATION EQUIPMENT & ENGINEERING COMPANY
5646 West Race Avenue • Chicago 44, Illinois
Phone EStebrook 8-3109

PRIVATE LINE TELEPHONE CARRIER EQUIPMENT



TYPE PLC

WRITE FOR SPECIFICATIONS AND PRICES

CARRIER AND MICROWAVE

BUDELMAN bec

DISTRIBUTORS

BUCKEYE TELEPHONE & SUPPLY CO.
1250 KINNEAR ROAD, COLUMBUS, OHIO

NELSON ELECTRIC SUPPLY COMPANY
1123 SLOCUM STREET, DALLAS 7, TEXAS

TELEPHONE ELECTRONICS
P.O. BOX 571, STOCKTON, CALIFORNIA

THE ENGINEERING SERVICE
P.O. BOX 178, BUTTE, MONTANA

EXPORT

TELE-RADIO SYSTEMS LTD.
3534 DUNDAS ST. W., TORONTO 9, ONT.

WESTREX INC.
111 EIGHTH AVENUE, NEW YORK 11, N. Y.

BUDELMAN ELECTRONICS CORPORATION
375 FAIRFIELD AVE., STAMFORD, CONN.

and do not be satisfied with fringe hits. Let the bullseye be your objective. The opportunity to become a part of management is much greater than when your father and grandfather were young men. It is up to you. The only trouble with the future is that it seems to get here a lot faster than it used to!

General T&E Directors Vote 3-for-1 Stock Split

The board of directors of the General Telephone & Electronics Corp. voted at a meeting on Aug. 6 to ask the shareowners, at the April 20, 1960 annual meeting, to approve an increase in the common stock authorized to be outstanding from 30 million to 90 million shares; to reduce the par value of the stock from $10 per share to $3.33⅓ per share; and to split the stock three-for-one.

It was decided to forego holding a special shareowners meeting for the purpose of acting on the split, thus making unnecessary the sizeable expenditure a special meeting would entail.

The board also announced that if the shareowners approve the proposed split, it intends to set the annual dividend on the new stock at 76 cents per share, effective with the payment of the second quarter 1960 dividend.

At the Aug. 6 meeting, GT&E directors also placed the company's common stock on a $2.20 annual dividend basis by the declaration of third quarter dividend of 55 cents per share. This dividend is payable on Sept. 30 to shareowners of record as of Aug. 21.

Name E. J. Kenealy Chairman Of Ohio Commission

Governor DiSalle has appointed Edward J. Kenealy chairman of the Ohio Public Utilities Commission.

Mr. Kenealy served as a utility rate expert for Cleveland for about 30 years before he was appointed to the commission in 1955 by former Governor Lausche.

Everett S. Krueger Jr., who was appointed commission chairman by former Governer O'Neil, moved back to a post as a member, with Mr. Kenealy's appointment to the chair.

There were two major attempts in the just-concluded session of the Ohio legislature to overhaul the state's relations with utilities. The governor backed legislation to revise statutes which set the basis for utility rates on "reconstruction cost new (RCN)," less observed depreciation. A bill to change RCN was defeated in the Ohio House.

Commission Chairman Kenealy is reported to be a critic of the RCN law. He furnished the governor with material to back his point of view. Mr. Krueger reportedly had admitted some changes should be made in the law. Commissioner Ralph A. Winter said the 40-year-old system, unique to Ohio, needed no change, the report stated.

Bigbee Is Superintendent, N. C. Hq., United Company

The United Telephone Co. of the Carolinas, Inc. announced the appointment of John M. Bigbee as commercial superintendent of the company effective Aug. 1.

Mr. Bigbee will have headquarters in Southern Pines, N. C.; the company operates 19 exchanges serving 23,000 stations in North and South Carolina.

Mr. Bigbee grew up in the industry, working in various of his family's exchanges.

He attended the University of South Carolina, majoring in electrical engineering.

After service in the Navy during World War II, he joined certain other Independent companies as local manager.

He joined the United company in April, 1952, as equipment supervisor in the Beaufort, S. C., district.

In October, 1958, he was transferred to Southern Pines as assistant commercial superintendent.

He follows E. W. Smail in his new position. Mr. Smail became assistant general manager of the company in March of this year.

R. H. Burfeind Convalesces At Home After Operation

R. H. Burfeind, telephone consultant, has returned to his home for several weeks convalescence after a long stay in the hospital.

Mr. Burfeind underwent surgery at Presbyterian Hospital, Chicago, Ill., on July 15. He was able to return to his home at 1100 N. Dearborn Parkway, Chicago, on Aug. 7.

Mr. Burfeind acts as special consultant for telephone battery applications for the Gould National Batteries Inc.; and as consultant for the Henkels & McCoy construction firm, and Lindsay Telephone Supply Co.

Obituaries

ELGIN R. BYRNE, 70, of Westfield, Ind., died on July 21.

Mr. Byrne had served as president of the former Noblesville Telephone Co.

For many years he was chief accountant for the Indiana Public Service Commission.

Survivors include his wife, Mary L., and two brothers, Waldo E. of Minneapolis, Minn. and Donald of Louisville, Ky.

DR. A. B. SMITH

DR. ARTHUR BESSEY SMITH, 84, a retired vice president of the former Automatic Electric Laboratories, Inc., died on Aug. 4, in the Evanston (Ill.) Hospital.

Dr. Smith led a long, full life, having become well known as a research engineer, inventor and a pioneer in communications.

He was a graduate of the University of Nebraska, where he received a B.S. degree in electrical engineering in 1901. During the early years of his career, he worked for telephone companies in Nebraska, Iowa and in New York. He taught telephone engineering for three years at Purdue University, and received an electrical engineering degree from that institution.

His association with Automatic Electric began in 1909 as assistant to the sales manager. However, he was soon transferred to the research department, and thereafter devoted his efforts to research and development.

Dr. Smith was granted 31 patents in such telephone fields as substation circuits and apparatus, transmitters, receivers, toll dialing, voice frequency repeaters, trunking systems and special services; and he invented the booster telephone circuit.

In 1912, he established the Automatic Electric training school and served as its director, while continuing his regular work in research and development.

Northwestern University conferred an honorary Ph.D. degree in physics upon Dr. Smith in 1926. Basis for this doctorate was his investigation of the phenomena underlying the slow-acting relay.

He was the author of many articles and technical papers on such subjects as automatic telephony, telephone switching, transmission and related topics, and collaborated with W. Lee

Transite's installed cost is less because your crews spend virtually all of their time with the actual installation of duct.

Now–save 5¢...10¢... up to 15¢ per duct foot!

Here's why Transite Telephone Ducts offer these substantial savings in installed cost!

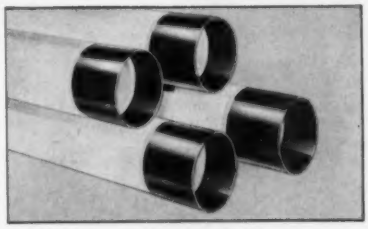
IN virtually every part of the nation installations of Transite® Telephone Ducts are at a new high!

Why? For the simple reason that no other material offers so many practical advantages . . . with each contributing to lower *installed* costs. In fact, savings can run as high as 15¢ per duct foot!

With Transite you're working faster, easier . . . with smaller crews. For there's no complex joining and difficult positioning. Instead, the 10' Transite lengths are easily handled by one man. And the plastic coupling used with Transite makes a tight joint that goes together in seconds . . . stays tight for the life of the line.

More time and labor are saved in splaying...curving...bypassing...and in manhole connections! Every one of these on-the-job requirements is met with a minimum of "extra" in time and material.

With Transite you have fewer items to stock, less warehousing, lower inventory costs. There's less handling of material all around. As for breakage, there's practically none. Savings are substantial.



Write today for brochure TR-239A, "Transite Telephone Ducts." It gives complete information on why Transite's installed cost is lower . . . as well as why it reduces future costs in cleaning, rodding and repair. Address Johns-Manville, Box 14, New York 16, N. Y. In Canada, Port Credit, Ont.

JOHNS-MANVILLE JM PRODUCTS

KILLOREN
of WISCONSIN
established in 1926

Fully Equipped to Furnish:

Complete construction crews
Cable splicers
Buried cable crews
Station installers
Right-of-way clearing and maintenance

Main office:
136 N. STATE STREET
APPLETON, WISCONSIN
Phone REgent 3-5549

Here's Safer, Easier Reel Handling

NEW
SIMPLEX
REEL JACK
with
Lightweight
Aluminum
Housing

10-tons capacity

●Here's the reel jack that is strong and stable without hard-to-handle extra weight. An aluminum alloy housing reduces overall weight by 21 pounds, yet maintains full 10-ton capacity. "T" shaped laminated oak base gives solid, safe foundation. Single acting mechanism provides easier operation. Handles reels to 84" dia.; weighs 83 lbs. Furnished with 5' lever bar.

Write for full data on Reel Jack No. A-1029 and other Simplex Utility Jacks.

Pole Pulling and Straightening Jacks—Save time, cut work crews necessary to pull, straighten or move poles. No. A-1538 has aluminum housing, 15-tons capacity, weighs 63 lbs.

All-Purpose Jack — No. 310A lifts, pulls, pushes at any angle. Four lift points, 15-tons capacity.

WORLD'S LARGEST MAKERS OF INDUSTRIAL MECHANICAL AND HYDRAULIC JACKS

SIMPLEX JACKS

TEMPLETON, KENLY & COMPANY
2557 Gardner Road, Broadview, Illinois

Campbell in the authorship of the book "Automatic Telephony."

Dr. Smith was elected a vice president of Automatic Electric Laboratories in 1934. He was the recipient of the Talbot G. Martin award in 1943. His alma mater honored him with another doctorate, in engineering, in 1950, in recognition of his numerous contributions to the field of communications. He retired, Aug. 31, 1955.

He was a fellow and life member of the American Institute of Electrical Engineers, a fellow in the American Association for the Advancement of Science, a member of the American Physical Society, the Western Society of Engineers, the Institute of Radio Engineers, and of the Independent Telephone Pioneer Association. He was also a life member of the Telephone Pioneers of America.

Dr. Smith's wife preceded him in death. He is survived by a son, Howard H.; a daughter, Mrs. Norman Lumley; and by three grandsons and two great grandsons.

•

WILLIAM W. EGE, 59, Copperweld Steel Co. vice president and director died on Aug. 8, at his residence in Mt. Lebanon, Pa.

W. W. EGE

Widely known in the communication, electrical power, and railroad industries, Mr. Ege was vice president in charge of Copperweld's wire and cable division and a director of the company. In 1943, Mr. Ege moved to the Pittsburgh area to take charge of wire and cable sales for the entire country. Prior to that, he was western district manager of sales with headquarters in Chicago. He had been associated with the company for 33 years.

A native of Chicago, Mr. Ege was a graduate of the Illinois Institute of Technology. He started his business career as an electrical engineer with the Commonwealth Edison Co. and resigned in 1926 to join Copperweld.

Mr. Ege was a member of the American Institute of Electrical Engineers.

He is survived by his wife, Mrs. Carolyn Ege; two children, William W. Ege Jr. and Mrs. Carol Sikkema; and seven grandchildren.

HELICOPTER SURVEY

Concluded from page 32

of these surveys depend the coverage of the radar equipment and the quality of the communications network over which a warning flash might, some day, travel.

The snow which covers most of Greenland is constantly shifting; it is constantly depressed by the weight of new snows, as well as moving horizontally. Based on past experiences in ice-cap construction, Air Force and Army engineers and the architectural engineering firm of Metcalf & Eddy, LaPierre, Litchfield & Partners had to decide on a building design which would take this into account. The design selected will place the communications and radar antennas on buildings, which in turn are mounted on adjustable pedestals, permitting realignment as the need arises.

The Danish Government has made this vital project possible by providing sites in its territories. W. E. Burke, vice president of Western Electric's Defense Projects Division, stated that the engineering plan for the line has been submitted to the Air Force for approval. Installation of equipment will proceed as the buildings are readied and at a later date Western Electric will conduct extensive system testing before turning DEW-East over to the Air Force.

G. B.—Sweden Cable Link

Preparations for a new 600-mile telephone cable between Sweden and England have begun in Goteborg, Sweden. This will be Sweden's first coaxial cable on the sea bottom. It will have a capacity of 60 connections simultaneously and will be provided with 25 built-in amplifiers. The British cable-laying ship Monarch will lay the cable during the summer of 1960.

Note Freedom's History

"There is no history worthy of attention but that of a free people; the history of a people subjected to despotism is only a collection of anecdotes."—CHAMFORT.

Bewildering Chasm

"The more one endeavors to sound the depths of his ignorance the deeper the chasm appears."—A. BRONSON ALCOTT.

Here's the answer to
Any Telephone Operation that requires
HOLES in MASONRY

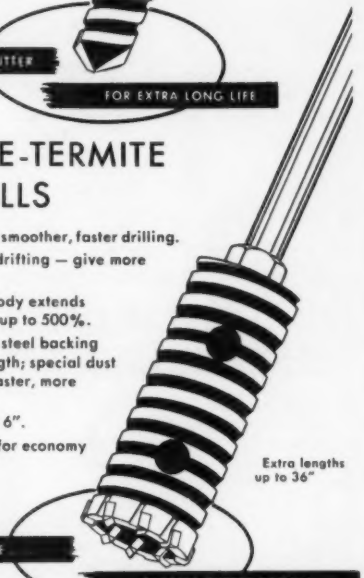
Whenever the job calls for holes in concrete, brick, tile, etc. . . . use job-proven Carbide-Tipped TIP TOP Drills and CONCRETE-TERMITE Drills. You'll find these drills ideally suited to the exacting needs of the utility field. They will give you cleaner, more accurate holes — with no spalling. And, they drill faster and at lower cost because their extra-large carbide cutters last longer than ordinary drills. No water required.

TIP TOP
SINGLE-CUTTER DRILLS

- Hole starting is easy and accurate.
- Special grinding cutter penetrates faster with less pressure.
- Extra-thick cutter gives longer life, permits more re-grinding.
- Double spiral worm removes pulverized material faster.
- Diameters from 11/64" to 1½".

CONCRETE-TERMITE DRILLS

- Multiple cutter design for smoother, faster drilling.
- Multiple cutters prevent drifting — give more accurate holes.
- Nitride-Hardened drill body extends dust-removing worm life up to 500%.
- Carbide cutters have full steel backing support for greater strength; special dust channels into worm for faster, more complete dust removal.
- Diameters from 3/16" to 6".
- Interchangeable shanks for economy and convenience.



. . . to start holes fast and EXACTLY where you want them use Carbide-Tipped E-Z STARTER POINTS . . . when using Multiple-Cutter CONCRETE-TERMITE Drills

Get the greater drilling accuracy, durability and speed of CONCRETE-TERMITE Multiple-Cutter Drills *plus* the hole-starting ease of single-cutter drills.

For Concrete-Termite Solid-Body Drills
For Concrete-Termite Core-Style Drills
For Concrete-Termite Core-Style Drills over 1¼" Diam.

WRITE TODAY
. . . for FREE literature, prices and drill recommendations

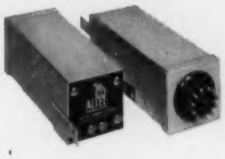
RELTON CORPORATION (R) *Formerly TERMITE DRILLS, Inc.*

99 N. LOTUS AVE., P. O. BOX 5546 PASADENA, CALIFORNIA

ALTEC TELEPHONE EQUIPMENT

Compact · Versatile · Easy to Service

The advanced design of ALTEC telephone equipment makes it ideal for modern telephone systems. In addition to its reliability and high standard of performance, ALTEC equipment requires a minimum amount of space. Inherent flexibility makes it useful in a wide range of applications. Easy maintenance is designed in to save time and money in servicing.



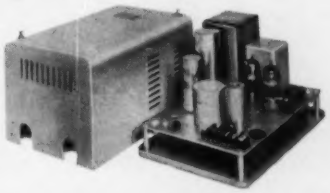
447A TRANSISTOR AMPLIFIER
Telephone Repeater Type

Directly interchangeable with vacuum tube repeaters; dimensions are identical. Requires only 24 - 48 volts. Eliminates need for 130v supply.

SPECIFICATIONS:
Type: Repeater Amplifier (transistorized) • Gain: 37 db from and into 600 ohm loads • Power Output: +18 dbm (at +10 dbm distortion is 1.5%, 300-3000 cps) • Frequency Response: −1 db at 200 and 5000 cps referred to 1000 cps • Input Impedance: 600 ohms • Output Impedance: 600 ohms • Output Noise Level: −70 dbm • Controls: Input volume control which varies gain from −2 db to maximum gain • Power Required: 17 - 24 v (50 ma @ 20 volts) • Transistors: 1 − 2N191, 1 − 2N188A • Dimensions: 1¾" x 1¾" x 6" • Color: Cadmium plate with dichromate finish • Weight: 14 oz. • Mounting: 11 pin Amphenol 86 CPN plug • Monitor Tap: Auxiliary output winding 11 db below 600 ohm winding available at test jacks on front panel and at connector pins at rear of unit • Accessories: Panel for rack mounting 10 repeaters; Rack mounting power supply capable of energizing 100 repeaters; Equalizer; Panel for mounting up to 10 equalizers; Assembly for mounting a 447A in 105B apparatus box.

444B AMPLIFIER
COMPRESSION TYPE

Compression, attack and recovery times are fixed quantities providing optimum performance for message use.



SPECIFICATIONS:
Type: Compressor Amplifier • Gain: 600 ohm input: 70 db • Bridging input: 57 db bridging 600 ohm line • Maximum Compression: 35 db change in input results in 15 db change in output • Power Output: 34 dbm at 30 db compression; 35 dbm with rectifier tube removed • Frequency Response: −2 db at 100 and 3000 cps relative to 1000 cps; More than 10 db down at 10,000 cps • Input Impedance: 600 ohms balanced and 12,000 ohms balanced for bridging • Source Impedance: 600 ohms • Load Impedance: 4 and 600 ohms • Noise Level: 80 db below rated output; −115 dbm equivalent input noise • Power Supply: 117 volts, 60 cps, 30 watts • Tubes: 1 − 6BC8, 1 − 6AL5, 2 − 12BY7A • Dimensions: 9" x 6" x 5" • Weight: 7½ lbs. • Attack Time: 50 milliseconds • Recovery Time: 1 second for 63% recovery • Harmonic Distortion: At 33 dbm output, less than 5%, 200 - 4000 cps; At 30 dbm output, less than 2%, 200 - 4000 cps.

S-17B PROGRAM
AMPLIFIER SYSTEM

Cabinet houses two program-quality 437B amplifiers capable of multiple tandem operation, two 17224 equalizers, and two jack fields to facilitate testing, equalizing, and monitoring. Each amplifier contains its own AC power supply and mounts in the cabinet independently on a plug-in basis for easy replacement and centralized maintenance.

SPECIFICATIONS:
Output Power: +24 dbm • Distortion: not over ½% THD (30 - 15,000 CPS at +24 dbm) • Gain: at least 44 db; adjustable to minimum of 8 db • Gain adjustment: 2 db steps and 1½ db vernier • Frequency response: ±1 db, 20 - 20,000 cps • Equiv. input noise: −115 dbm • Input impedance (internal): 150/600 ohms ±5% • Output impedance (internal): 150/600 ohms ±5% as measured at output of the bridge • Longitudinal balance of input circuit and output circuit with 600 ohm connection: 55 to 60 db at 40 and 15,000 cps; 70 db at 1000 cps • Tubes: 1 − 12AY7, 2 − 12BY7A • Electrolytic condensers: Sprague 17D or equivalent • Transformer insulation: 1500 volt insulation between primary and secondary windings • Impendance change simply accomplished by reversing the impedance plug. Occupies 9⅜" of 19" rack space.

For complete information about ALTEC telephone and paging equipment see your Yellow Pages or write to

ALTEC LANSING CORPORATION
1515 S. Manchester Ave., Anaheim, Calif.
A subsidiary of Ling Electronics, Inc.

12-59

Famous for Quality and Dependability

IN THE NATION'S CAPITAL

Continued from page 18

generating units to existing power-producing projects and the construction of additional power-producing projects, shall not be subject to the requirements or limitations of any other law."

If that language means what it says, then TVA is not subject to the normal budget controls as other federal agencies are (under the Budget and Accounting Act of 1921 or the Government Corporation Control Act of 1946).

As a practical matter that probably does not make much difference, anyhow. But what does make a difference is who sits in the White House. Under a U. S. Supreme Court ruling, the President can fire any or all of the three TVA directors at his pleasure. That means if he is opposed to certain expansion plans, he will get rid of the directors (budget or no budget). On the other hand, if he approves and encourages TVA expansion in the future, he would be glad to OK any kind of a budget, if TVA had to submit one.

There is one other detail of this TVA law that might be worthy of mention for telephone people. That is the requirement that TVA repay, on a semi-annual basis, approximately 1.2 billion dollars the government has invested in the TVA power plant. And get this: TVA will have to pay interest at a *rate equal to the rate the Treasury is then paying to borrow money.* So we have here, finally enacted into law, a provision requiring this huge power project to repay the taxpayers' investment and to finance itself on future plant needs out of its own earnings and to pay an interest rate comparable with what the government has to pay for its own borrowed money.

In a way, this is all that Secretary of Agriculture Benson has been asking that REA borrowers do with respect to rural electrification and rural telephone loans. So it may be, in years to come, this pattern now emerging with respect to TVA will take hold and be extended to other federal projects and lending programs, such as REA. Right now, the REA zealots in Congress are saying that the 2 per cent interest rates will never be raised and that the REA borrowers will never have to stand on their own feet. As the general manager of the National Rural Electric Cooperative Association, Clyde T. Ellis, recently said: "It is simply not correct to say or imply that the rural electric cooperatives have no financial worries or that they can not stand on their own feet. . . ."

Mr. Ellis may be right about that. But if he is, we are now in a situation where what is sauce for the TVA goose becomes applesauce for the REA gander.

Labor Union Reforms

The response to the President's television message on Aug. 6 on the need for an honest labor union reform bill seems to be building a fire under a laggard Congress. The mail and telegram response surprised even the White House. Washington observers generally had previously been inclined to believe the President would pass a very weak bill or no bill at all—or maybe such a wrist-slapping excuse of a bill that the President would have to veto it.

But the lawmakers on Capitol Hill are becoming aware that the general public is not behind them on yielding to union leaders' demands that the reform bill be watered down to a mere scolding of the racketeers. As a result, the outlook has changed somewhat for some kind of a half-way effective labor union reform legislation.

The situation still is quite uncertain. But at least there is a chance that

PRECISE TENSIONING

of conductor, messenger, or guy wires, etc., with

Dillon Dynamometers

Why put up with "Oscillation" and "Sight and Sag" methods of setting tension when it is possible to employ a means of *precise* tensioning that is *not* subject to human error? The Dillon Dynamometer is the answer to this need!

Above photo illustrates ease with which the Dillon Dynamometer accurately checks tension in a new line going up or in an old line standing *without cutting the wire*. We will be happy to supply illustrated details upon request.

Available in 13 capacities from 0-500 to 0-100,000 lbs., Dillon Dynamometers also check effective holding strength of anchors, strength of insulators and cross arms, weight of cable reels and poles and perform scores of other important tests. Compact, light and sturdy, all Dillon Dynamometers are overload protected, equipped with max. hand, and certified accurate.

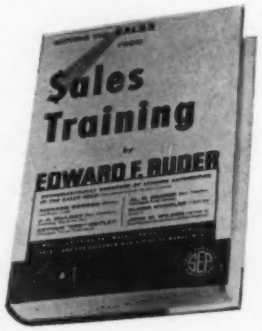
W. C. Dillon & COMPANY, INC.

14586 KESWICK ST., VAN NUYS 14, CALIF.

NEW TRAINING BOOK RECOMMENDED BY TELEPHONY

Here is a much-needed book on sales training for use by managers, department heads, superintendents, trainers, schools and libraries.

The newest training techniques are given practical application. Included are indoctrination, refresher and by mail training; memory, reading and speech improvement; and training supplements—sales contests, meetings, manuals, house organs, and new recruiting and hiring methods. This new book is enthusiastically endorsed by the top authorities—Arthur Motley, Pres., *Parade Publications;* Al Seares, V.P., Remington Rand; Elmer Wheeler, Consultant; John Wilson, Retired V.P. Sales, National Cash Register; J. McInay, V.P., Marketing, Ray-O-Vac; Richard Borden, Consultant.



Bound In Beautiful Executive Leatherette

MAIL COUPON TODAY

To: Book Department, TELEPHONY Publishing Corp.
608 S. Dearborn St., Chicago 5, Illinois

Send me _____ copies of "Getting the Sales from Sales Training" @ $5.95 each.

☐ Payment enclosed (postpaid) ☐ Bill me

Name_____

Address_____

City_____ Zone____ State_____

Company_____ Position_____

Congress will now include certain demands of the President, based on the Senate's investigation exposé of wholesale racketeering which he called "a national disgrace."

The President made four essential demands in the way of teeth for pending legislation:

(1) It should bar gangsters and corruptionists from the union movement.
(2) It should outlaw blackmail picketing and secondary boycotting.
(3) It should give state authorities power to act in labor disputes where the National Labor Relations Board cannot or will not act.
(4) It should reinforce the right of union members to run their unions in a democratic way.

It is possible that the bill which finally gets out of Congress—if one does get out—will not contain all four of these provisions. On the other hand, it might. Or it might contain some of them. In any event, the picture has been changed quite a bit and probably for the better. The responsibility for this much progress lies in the spontaneous response of an aroused public opinion.

IT&T Radio Relay Set Gives Army 2-Way Communication

A versatile radio relay set that provides soldiers in combat areas with virtually every kind of two-way communication service has been developed for the U. S. Army Signal Research & Development Laboratory, Ft. Monmouth, N. J., by International Telephone & Telegraph Corp.

The set, developed by ITT Laboratories, Nutley, N. J., can be delivered quickly by light truck or helicopter to forward combat areas where non-technical personnel can operate it. It can provide multichannel telephone service, handle signals for operating teleprinters, facsimile machines, combat radar, and television systems and other services.

It handles up to 96 voice communication channels simultaneously and reflects the latest principles of human engineering to permit operation and maintenance by non-specialized personnel in the field. The latest advances in reliability, engineering and transistorization have reduced the number of tubes from 135 to 41, ITT reports.

The system provides point-to-point line-of-site transmission and reception up to 30 miles, and as many as eight of the units may be used in a "chain" for service up to 240 miles. An additional "package" now under development will permit the equipment to transmit signals far beyond the horizon by bouncing them off a tropo-

Wire for all type spinners

ELECTRO-GALVANIZED

GALVANIZED

STAINLESS STEEL

ALUMINUM

COPPERWELD

COPPER

LASHING WIRE

WE PRODUCE

The finest lashing wire possible because we believe . . that lashing wire is one of the important parts of the cable plant, its duty being to hold the cable to the messenger for the life of the plant.

WE COIL

The best coil possible because we know . . that tangled or out of shape coils can cause spinning trouble, waste and delay.

Write for Complete Information

CABLE SPINNING EQUIPMENT CO.

Topeka Kansas

Spiraflex® CORD

BY GENERAL INSULATED WIRE WORKS, INC.*

*Licensed to manufacture under existing patents.

Telephone cord sets of proved performance backed by General Insulated's unmatched experience and know-how in the manufacture of quality telephone tinsel cordage:

Spiraflex HANDSET CORDS in bright colors with non-staining thermoplastic jackets in solid color extrusions matching color shade and sheen of telephone sets. Also non-staining black Neoprene jacketed cords. Both types available with or without integral moldings and terminations. Furnished in standard or extra long lengths.

STRAIGHT HANDSET AND DESK SET CORDS are available in non-staining thermoplastic constructions in matching colors and in black Neoprene.

GENERAL INSULATED WIRE WORKS, INC.

A DIVISION OF GENERAL CABLE CORPORATION
Providence 5, Rhode Island

CABANISS-POGUE COMPANY
Consulting Engineers
Appraisals—Cost and Rate Studies
Financial Assistance
GRANT BLDG., ATLANTA, GEORGIA

CARL C. CRANE, INC.
Consulting Engineers
121 S. Pinckney St. Madison 1, Wis.
Telephone ALpine 6-0247

McGRATH ENGINEERING, INC.
Consulting Engineers
209 West 6th Street
TOPEKA, KANSAS
Telephone CE 2-2358

SLOAN, COOK & LOWE
CONSULTING ENGINEERS
Appraisals—Original Cost Studies
Plant, Traffic and Commercial
Engineering
120 S. La Salle St.
Chicago 3, Ill. Tel: FRanklin 2-8924

THE TELEPHONE ENGINEERING COMPANY OF CALIFORNIA
CONSULTING ENGINEERS
314 So. Geneva St. NAtional 44-357
CLAREMONT, CALIFORNIA

CABLE CONSTRUCTION CO.
1512 Center St. Tacoma, Washington
ENGINEERING - CONSTRUCTION
SPLICING - CABLE PLOWING
CENTRAL OFFICE INSTALLATION
World-Wide

ROBERT E. FOLEY CONSTRUCTION CORP.
DESIGN—SURVEYS—APPRAISALS—Construction and Maintenance of Overhead and Underground Telephone Plant. Complete supply of poles available for emergency requirements.
48 GRISWOLD STREET
BINGHAMTON, N. Y. TEL. 2-7215

HARRIS-McBURNEY CO.
PUBLIC UTILITY CONSTRUCTION
A complete construction service for the telephone industry
Construction Crews Engineering
Station Installers Appraisals & Reports
Cable Splicers C. O. Installation
Underground Duct Systems
Telephone ST 4-6126
P. O. Box 267 Jackson, Michigan

spheric layer of the atmosphere. ITT has pioneered in the development of tropospheric scatter or over-the-horizon techniques and equipment.

Designated as AN/GRC-66, the set consists of five basic units and can be transported by men in combat areas. Total weight is 332 pounds.

The set is intended for continuous 24-hour service over long periods of time under all climatic conditions from arctic cold to tropical heat and humidity.

Each piece of equipment is designed on a building block principle so that the blocks or modules can be removed and replaced in seconds for easy servicing and maintenance, the company says. Permanent etched-metal maintenance and operating instructions are fastened to each unit.

A small shelter package, incorporating the AN/GRC-66 and other equipment necessary to form a complete field communication terminal with repeaters, can be quickly transported by truck or helicopter to meet the ever-changing communication needs of army combat commanders in fast-moving technical situations.

Communication Equipment Installation
Maintenance Modifications — Additions
Buy — Sell — Trade
Any Make — Type
Midwest Communications Service Co.
P.O. Box 3008 Telephone SW 9-4311
Lubbock, Texas

CLIFTON APPRAISAL COMPANY
1534 WALTHAM ROAD
COLUMBUS 21, OHIO
Inventory & Appraisal
Rate Adjustments
Continuing Property Records
JOHN F. CLIFTON, *Chief Engineer*

TUDOR AND YAGER, INC.
Telephone Construction
TIPTON, INDIANA
Phone OSborne 5-2267

PROFESSIONAL ENGINEERING AND CONSTRUCTION SERVICES
Plant Construction Crews • Installer Repairmen
Cable Splicers
CENTRAL OFFICE INSTALLATION
HENKELS & McCOY
PHILADELPHIA
1800 Johnson St. Elkhart, Ind. Tel. 3-2915
Atlanta, Ga. CE-7-4153 Ocala, Fla. MA-9-1284
Ashland, Ohio 3-7543 St. Johns, Mich. 966
Bloomington, Ill. 6-1850 St. James, Minn. 492
Lebanon, Ky. 660 Wausau, Wis. 2-2356
PERFORMANCE Has Built Our Business

W. L. McGuire of AE Heads AFCEA, Chicago Chapter

William L. McGuire, vice president and general commercial manager of the Automatic Electric Co., has been elected president of the Armed Forces Communications & Electronics Association, Chicago chapter.

W. L. McGUIRE

The AFCEA is a world-wide association of representatives of industry, the armed forces, and other government agencies who are concerned with fostering the development and operation of communications, electronics, and photography for national defense.

Hallowell to Head Boston Sales, U.S.I. Chemicals

Jesse H. Hallowell has been named Boston sales division manager for U. S. Industrial Chemicals Co., division of National Distillers & Chemical Corp. The announcement was made by Alden R. Ludlow Jr., vice president in charge of sales.

Mr. Hallowell succeeds Edward C. Richardson, who will become U.S.I. manager of Chicago sales.

Mr. Hallowell was working as a salesman out of the company's Chicago office at the time of his new appointment. Prior to this he had been located at the U.S.I. Tuscola, Ill. Technical Service Laboratory, where he began his employment with the company in 1953.

During World War II, he served in the South Pacific with the U. S. Navy.

He was graduated from Eastern Illinois State College in 1950. He is a member of the Society of Plastic Engineers.

Casting Stones

"He that accuses all mankind of corruption ought to remember that he is sure to convict only one."—BURKE.

MDF PROTECTION

Western Electric (fully equipped)
#C 50 A, 50 pr. group, new . . . $40.
reconditioned . . . . . 25.
C 52 A, 52 pr., new . . . . . 42.
reconditioned . . . . . 27.
C 25 A, 25 pr. (1/2 of C50), new 20.
1268 A, 20 pr., new . . . . . 10.
1268 B, 23 pr., new . . . . . 12.
1269 A, 20 pr., new . . . . . 10.
1435W(1269-A-wood base), new 10.
1435 U, Fuse group, new . . . . . 5.
Heat Coils. 76A, new . . . . . 10¢
Frames, MDF, W.E. & Cook
6 & 8 ft., single or up to 5 verticals in unit—save over half.
FUSES, 35A, B, C, H, S, New, 10¢. ($9 hund., $80 thousand) 75,000 in stock (standard W.E. pack, 10 or 50)

OPEN WIRE PROTECTION

WE #83A (#84A in wp. mtg. box, 5 pr. block equipped with #26 & #30)
New $5.00—Reconditioned $4.00

"KICK-COILS"

(CB phones to LB SWBD)

KELLOGG

C-111

Ring-thru, 4 section (50 ohms each) 1:1 ratio. Ideal for connecting CB phones to Mag. board using common battery supply.
Also may be used for ring-thru LB cord circuits, isolation, drainage.
New $1.50—Used $1.00

REPEATING COILS

(new)

W.E. 77A (subsitute) C-161 . $ 3.50
76A (two coils) 1:1 rat. 5.00
75A (better matched) . 6.00
91A (double coil) 10.00
93A, B, F, G 12.50
70A ring-thru 5.00
27A non-ring-thru 3.00
25A two of above 5.00
94E non-ring-thru 2.50
94G 3.50
94H 5.00
101A 5.00
120C, CS, E, ES 5.00
Retard coils, 149E 3.00
Kellogg—New
20A Repeating $2.00
19A Repeating 2.50

Pole Terminals, with lead Stub
W.E. F-10, 5½ ft. stub . . . . . $ 6
12 ft. stub 7
F-16, 5½ ft. stub 10
12 ft. stub 12
F-26, 5½ ft. stub (4 for $50) ea. 15
BD-102, cross-conn 51 pr. or terminal 102 pr. 80
BD-404, as above 200
BD-606, as above 250
B-101 (B Box) 100
(Protected, Fuse) 7 amp.
EA-26 (Protected) #26-27-30 Blocks 50

A.E. 60A type, 16 pr., 6' stub . $ 8
26 pr., 6' stub 12

Protected Pole Terminals.
11 pair S-6 Cook, A9—5 amp. Fuses—Tru-gap Dischargers. No stub, for Plastic cable, compression gland. New $19.50

Protected Interior Terminals.

Western Electric—all new. Lead stubs.
LA 11, complete $40
LA 16, complete 50
LA 26, complete 65
LA 26 (fuse chamber only) 20
with protection 30
LA 51, complete 100
LB 26, fuse chamber only 20
with protection 30
LC 16, complete 45
LC 26, complete 60
LC 51, complete 80

Interior, lead stub
W.E. G-16, bind post chamb. 5
G-26, bind post chamb. . . . 10
H-51, bind post chamb. . . . 20
(12 ft. stub)
E-51, 54" stub 25
50 ft. stub 40

Cook Terminals
WXB, 6 pr. (less box) Lead 4
WXB, 16 pr. (with box) 8
M-16, 51 pr. 15
Uniflex, 51 pr. 15
Cable vault, 101 pr. 50
(with H-20 protectors) 100
Terra-Term, 76 pr. 35

Underground Splice Boxes

MANUAL SWITCHBOARD POSITIONS

Western Electric #12—NEW

3 position, 15 cord (Universal) equipped 160 CB, 40 LB lines with 2 appearances, all lamp equipped 105C Power unit, line relays & trunk equipment available as needed.

KELLOGG C.O. Positions (like new) #258 jacks, #25 lamp jacks. Power board, line & cut-off relays, trunk equipment complete on racks. (Circuit details on request.)

Huge stock of New (also good used) Jack & Lamp strips, W.E., Kellogg, St. Carl. Line & Cutoff relays, trunk equipment. Cords & Plugs.

PBX Boards—cord & cordless.
New & rebuilt, many types.

TEST BOARD EQUIPMENT, W. E.

Jack fields, mountings: #230, 231 A & B, #184, 185, etc.

Jacks: 410A, 218, 219, 220, 239, etc.

Patch cords — Test cord plugs.

MDF & Terminal test plugs & shoes.

Hybrid repeating coils.

Complete WE Toll Test Boards.

Shipped on Approval—Satisfaction Guaranteed

The Telectric Co.

1218 VENICE BOULEVARD **Richmond 8-2249** **LOS ANGELES 6, CALIFORNIA**

CLASSIFIED SECTION

Rates 15 cents per word payable in advance. Minimum charge $3.00 for 20 words or less. Classified advertisements must reach us 8 days before publication date.

HELP WANTED

CABLE SPLICERS, Station Installers, Equipment Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 1800 Johnson St., Elkhart, Indiana, or 6100 N. 20th St., Philadelphia, Pa.

OPPORTUNITY FOR SWITCHMAN with carrier background to maintain microwave and UHF equipment. A thorough knowledge of carrier equipment required; 2nd class radio license not required at this time. Reply sending complete résumé to Dist. C.O.E. Manager, P.O. Box 368, Crestview, Fla.

OFFICE MANAGER—BOOKKEEPER Central New York location. Will be required to do general bookkeeping and accounting for company of 4000 stations and supervise office functions. State education, experience, present salary. Empire Telephone Corp., Prattsburg, N. Y.

MANAGER, PLANT TELEPHONE, RADIO OPERATION. Position with General Electric Company, Richland, Washington. Candidate must have general knowledge of radio and comprehensive knowledge of theory and practices of telephony, particularly the functions, practical application, cost, economies, planning, installation, operation, protection and maintenance of telephone exchange and distribution facilities.

Must hold BS in Electrical Engineering or equivalent and have had supervisory experience. Salary open. Send resume and expected salary to: J. G. Bennett, General Electric Co., 760 Bldg., 700 Area, Richland, Wash.

HELP WANTED

EXPERIENCED COMBINATION MAN. Station installation and repair work in all dial plant. Reply by letter stating qualification. P. O. Box 1080, Tallahassee, Fla.

CENTRAL OFFICE MAINTENANCE AND INSTALLATION MAN. Kellogg K-60 crossbar equipment. Opportunity to advance into management of an expanding 7-exchange, 5,000 station company. Salary open. Write R. M. Carman, Watertown Telephone Co., Watertown, Minn.

WANTED MANAGER FOR REA telephone co-operative in Southern Kentucky, 2,000 dial stations; administrative ability, C.O.E. knowledge preferred. Good opportunity for qualified person. Replies confidential. Write P.O. Box 495, Burkesville, Ky.

COMBINATION-MAN experienced or trained maintaining relay CAX's, toll lines, etc., sober, hard-working, $90 week, reasonable quarters. Need man able to soon handle working manager opening around $500 month, sharing growth increase. Write McFarland, 5 Crestway, Silver City, N. M.

MANAGER—R. E. A. Cooperative serving 1900 subscribers. Administrative ability to achieve and maintain efficient operations. Technical, plant and commercial knowledge, and experience desired. Submit education, experience, references and salary expected in letter of application. Write Dickey Rural Telephone Mutual Aid Corp., c/o G. B. Coleman, President, Ellendale, N. D.

POSITION WANTED

INSTALLER-REPAIRMAN. Two years' experience. Excellent references. Can take permanent work only. For information and qualifications please write Rhady Hopkins, P.O. Box 669, Vicksburg, Miss.

FIVE YEARS EXPERIENCE INSTALLING AND TESTING Automatic Electric equipment. One year supervisory experience. Married, age 27, desire permanent location, preferably South or Southwest. Write Box No. 4273, c/o TELEPHONY.

SERVICES AVAILABLE

CABLE SPLICING—Would like to contract for splicing of cable in area not to exceed 50 miles from Green Lake, Wisconsin. 38 years' telephone experience. B. J. Warsh, Box 424, Green Lake, Wis.

WANTED TO BUY

WILL BUY FOR CASH your telephone system, magneto, common battery or dial. Please reply to Joseph Sunderland Ray, P. O. Box 3141, Beverly Hills, Calif.

WANTED ALL MAKES OLD TELEPHONES—our truck will pick up and pay you Cash on the spot. Telephone Co., Turtle Lake, Wis.

TELEPHONES—all types—any condition, candlesticks, wall sets, etc. Write advising quantities available. Our trucks will pick up. Reply to Box No. 3952, c/o TELEPHONY.

FOR SALE

LEICH 901-wall or desk magneto telephones. Cleaned, tested and guaranteed, $16.50 each. As removed from service, no broken or missing parts, $15.00 each. Turtle Lake Tel. Co., Turtle Lake, Wis.

480 FEET, 202 PAIR, 22G 775 ANKOSEAL plastic aerial telephone cable. New. At reduced price. Schleswig Telephone Co., Schleswig, Iowa.

ONE 80-LINE A.E. TYPE 35E97 (three-digit connector) CDO, five frequency synchromonic ringing with four trunk groups. Available complete with wood frame building, 10 x 12 x 8. Exchange layout and prints included. United Telephone Company of Indiana, Inc., Warsaw, Ind.

WESTERN ELECTRIC No. 302 HANDSETS

These sets are equipped with No. 5-HA dials and Stromberg-Carlson No. D-2993 synchromonic ringers 30, 42, 54 and 66 cycles.

There are just 2500 of these sets available. We will sell "as removed from service" or reconditioned. Write or phone for prices today.

BUCKEYE TELEPHONE & SUPPLY CO.

1250 KINNEAR ROAD COLUMBUS 21, OHIO

HU. 8-0655 (AREA CODE 614)

IMMEDIATE DELIVERY

2500 feet of new Roebling 102 pair 22 gauge Cable — cellulose acetate insulation, color coded, with Lead sheath. 500 foot reels @ $750.00 per 1000 feet, delivered.

Telephone Repair & Supply Co.

1760 W. Lunt Avenue Chicago 26, Ill.

FOR SALE

THIRTY LINE KELLOGG RELAMATIC SWITCHBOARD just removed from service. It is in good order and is complete with charger and battery. For price and full information write Grainfield Telephone Co., Grainfield, Kans.

RAYTHEON RECTICHARGERS BRAND NEW. Model 1068. Output 48V. 1.0 amp. Original cost $232.00—Price $90.00. FOB Chicago. Inspection invited. W. G. Klos, 6619 S. Komensky Ave., Chicago, Ill.

USED Fir 10′ Arms, 30″ Crossarm braces, drop-type tramps, miscellaneous hardware—½ price. Also re-galvanized hardware like new—¾ price. Utilities Equipment Co., Inc., P. O. Box 8044, Memphis, Tenn.

RECLAIMED DROP WIRE, COPPERWELD, NEOPRENE, PARALLEL, SHORT LENGTHS, 100 to 500 Ft. per run—@ $11.00 per M. Ft. Some short lengths rural distribution, No. 19—copper, 6 pair @ $55.00 per M. Ft. Limited supply. Independent Telephone Repair Co., 2137 W. 21st St., Chicago 8, Ill.

CONVERTING TO DIAL?
Let us make it easy for you. We can furnish immediately, to your specification, a North CX-100 or CX-200 Automatic Switchboard in excellent condition. We can install it for you. We can also furnish re-built dial telephones for your entire system. Ask about our Financing Plan. Telephone Equipment, Inc., Montrose, Mich. Phone NEptune 9-5211.

ORDER FROM L. E. S. AND PAY LESS
CABLE SPLICING TOOLS & SUPPLIES
PROMPT DELIVERY FROM STOCK
Send for Bargain Stock List No. CS.
LINE EQUIPMENT SALES
46 W. Harrison St., Chicago 5, Ill.

CABLE SPLICERS • LINEMEN
STATION INSTALLERS
STEADY WORK, GOOD PAY
MIDWEST LOCATION.
The Weikel Line Company, Inc.
FORT WAYNE, IND.

Call us collect for

- CONSTRUCTION CREWS
- CABLE SPLICING
- STATION INSTALLATION
- CENTRAL OFFICE INSTALLATION
- UNDERGROUND DUCT SYSTEM
- CABLE TRENCHING AND PLOWING

IRBY CONSTRUCTION CO. Since 1925
JACKSON, MISSISSIPPI
815 SOUTH STATE ST. FL 5-4532

INSPECTION SERVICE
"AT TIMBER TREATING PLANTS"
Of poles, crossarms, and preservative treatments. Analysis of wood preservatives. Consultation and specification writing.
A. W. WILLIAMS INSPECTION CO., INC.
MOBILE, ALABAMA
New York • St. Louis • Portland
Inspectors stationed throughout the U.S.A.

FOR ALL OF YOUR CENTRAL OFFICE AND PBX INSTALLATIONS, MODIFICATIONS, AND ENLARGEMENTS, IT'S THE
T. E. I.
TELEPHONE ELECTRONICS INSTALLATION CORP.
Hayes Bldg., 12 E. Tenth St., Erie, Pa.
MAY WE BE OF SERVICE TO YOU?

ATLANTIC
Creosoting Co., Inc., 17 Battery Pl., N. Y. C.
PINE POLES
Creosote Oil or Pentachlorophenol
Boston, Mass. — Portsmouth, Va.
New York, N. Y. — Philadelphia, Pa.
Savannah, Ga.

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

Cascade Pole Co., P.O. Box 743, Tacoma, Wash. — Creosoted Douglas Fir and Cedar Poles.

C. M. Christiansen Co.—Northern White Cedar Poles, Pentachlorophenol treated. Plant and Yards, Phelps, Wis.

Dierks Forests, Inc., Wood Preserving Division, 810 Whittington Ave., Hot Springs, Arkansas. Southern Pine select poles, all sizes and lengths, pressure-treated, creosote or penta. Also creosote-2% penta mixture. Prompt shipment.

Eppinger & Russell Co., 80—8th Avenue, New York 11, N. Y.—Creosoted Poles and Cross Arms. Plants: Jacksonville, Fla., Norfolk, Va., Eddington, Pa.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

International Paper Co., Wood Preserving Division — 926 Grand Avenue, Kansas City, Missouri—"LONG-BELL" pressure-treated Southern Pine and Douglas Fir Poles—Creosote or Penta.

Piedmont Wood Preserving Company—Creosoted and Creosote-Penta Treated Pine Poles. Plant, Augusta, Georgia. Yards, Virginia, West Virginia and Connecticut. Address inquiries to Box 1662, Spartanburg, S. C.

Texas Creosoting Company—512 Main Street, Orange, Texas—Creosoted Southern Yellow Pine and Douglas Fir Poles. Can also treat with "Penta."

CABLE LASHING WIRE
STAINLESS STEEL TYPE 430
Size .045
• 1200 ft. Coils
• 6 Coils per Box
• Straight hub

MADE TO A.T.T. SPEC 7153
• SPECIAL WHILE THEY LAST •
1000 coils available for immediate shipment.
PRICE **$5.50** per coil.
Free freight for orders of 18 coils or more.
• PROMPT DELIVERY •
GEORGE M. ACKER CO.
3833 WILSHIRE BLVD.
LOS ANGELES 5, CALIF.
DUnkirk 2-4225

BIG SAVINGS!
#10 HEMINGRAY GLASS INSULATORS. Brand New, Export packed. Per 1000. Only..... **$35.**
(lots of 5000 or more $30. ths.)
prices f.o.b. Sacramento
LORIS SALES
P.O. Box 1856-T
907—2nd St.
Sacramento, Cal.

ARCHIE DAVIS, INC.
UNDERGROUND CONDUIT AND MANHOLE CONSTRUCTION
BURIED CABLE—CABLE PLOWING
POLE LINE CONSTRUCTION
522 Forest St., Jacksonville 2, Florida
Telephone: Elgin 3-7501

FREE Estimates
PLOWING
(Buried wire & cable)
Call Collect
MULLEN CONSTRUCTION COMPANY
2002 E. Wisconsin Ave. REgent 4-9881
Appleton, Wisconsin

Index to ADVERTISERS

	Page
Acker Co., Geo. M.	77
Acme Electric Corporation	—
Acme Visible Records, Inc.	37
Acton, Laboratories, Inc.	—
Airtronics International Corp.	—
Alphaduct Wire & Cable Co., The	—
Altec Lansing Corp.	71
Aluminum Company of America	—
American Chain & Cable Co., Inc. Page Steel & Wire Div.	—
American Creosoting Corporation	—
American Electrical Heater Co.	—
American Steel & Wire Co.	—
American Telephone & Telegraph Co.	14-15
Anaconda Wire & Cable Co.	12-13
Ansonia Wire & Cable Co., The	—
Arps Corporation	—
Atlantic Creosoting Co., The	77
Auburn Machine Works, Inc.	—
Automatic Electric Sales Corp.	27, 33, 38-39
Avnet Electronics Corp.	—
Baker Wood Division	—
Barber Advertising Specialties, Walt	—
Barber-Greene	—
Bartlett Tree Experts	—
Bell Telephone Laboratories, Inc.	—
Benner-Nawman, Inc.	—
Berry & Co., L. M.	—
Bethlehem Steel Co.	—
Biddle Co., James G.	—
Bishop Manufacturing Corp.	—
Blaw-Knox Company	—
Bohnsack Equip. Co.	—
British Insulated Callenders' Cables, Ltd.	—
Brown Mfg. Company	42
Budelman Electronic Corporation	68
Buchart Associates	—
Buckeye Telephone & Supply Co.	65, 76
Burgess-Manning Company	—
Burroughs Corp.	—
Butler Manufacturing Co.	—
C&D Batteries, Inc.	16
Cabaniss-Pogue Co.	74
Cable Construction Co.	74
Cable Spinning Equipment Co.	73
Calculagraph Company	—
Chance Co., A. B.	—
Charles Machine Works, Inc.	—
Chase Brass & Copper Co.	—
Cleveland Inst. of Radio Electronics	—
Clifton Appraisal Company	74
Collins Radio Co.	—
Colorado Fuel & Iron Co., The	—
Commercial Cord Company, Inc.	—
Communication Equipment & Engineering Co.	67
Cook Electric Company	—
Copperweld Steel Co.	35
Crane, Inc., Carl C.	74
Cushman Motor Works, Inc.	—
Dakota Engineering, Inc.	—
Dampp-Chaser, Inc.	50
Davis Construction Co.	—
Davis, Inc., Archie	77
Davis Mfg. Co., Inc.	—
Dial Haven, Inc.	—
Diamond Expansion Bolt Co.	—
Dillon & Co. Inc., W. C.	72
Donnelley & Sons, R. R.	—
Dow Chemical Company, The	—
Duo-Safety Ladder Corp.	42
Electric Specialty Co.	—
Everstick Anchor Co.	—
Exide Industrial Division— The Electric Storage Battery Co.	—
Fairbanks, Morse & Co.	—
Fitchburg Engineering Corporation	—
Foley Construction Co., Robert E.	74
Gagne Enterprises, Inc.	—
General Cable Corporation	—
General Electric	—
General Insulated Wire Works	73
General Machine Products Co., Inc.	47
General Telephone Directory Co.	Back Cover
Gladwin Plastics, Inc.	—
Goodrich Chemical Co., B. F., The	—
Gould-National Batteries, Inc.	—
Graybar Electric Co.	—
Haley & Co., R. G.	—
Hallamore Electronics Co.	—
Harris McBurney Company	74
Henkels & McCoy	74
Highway Trailer Company	—
Hirsch Organization Inc., Gustav.	—
Holan Corp.	79
Hubbard & Company	—
Indiana Steel & Wire Co.	52
Irby Construction Co.	77
Irwin Auger Bit Co.	—
Jet Line Gun Company	—
Johns-Manville	69
Justrite Manufacturing Co.	—
Kearney Co., Jas. J.	—
Kellogg Switchboard & Supply Co.	6-7, 41, 44-45
Kennecott Wire & Cable Div.	—
Keystone Steel & Wire Co.	5
Killoren Company	70
Klein & Sons, Mathias	46
Kleinschmidt	—
Koiled Kords, Inc.	—
Koppers Co., Inc. Wood Preserving Div.	—
Leich Sales Corporation	10-11
Lindsay Telephone Supply Co.	—
Line Equipment Sales	77
Lorain Products Corp., The	—
Loris Sales	77
Magnolia Chemical Company, Inc.	—
Malleable Iron Fittings Co.	—
McCabe Powers Auto Body Co.	9
McGrath Engineering, Inc.	74
Midwest Communciations Service Co.	74
Monsanto Chemical Co.	43
Morrison-Pelsue Co.	—
Mullen Construction Co.	77
Murphy Engineering Laboratories	—
Natco Corporation	—
National Pole & Treating Div.	—
National Standard Co.	—
National Telephone Supply Co.	—
Neubauer Manufacturing Co.	40
Neuses, Inc., P. K.	—
North Electric Company	53-64
Onan & Sons, D. W.	—
Orangeburg Manufacturing Co., Inc.	—
Osmose Wood Preserving Co.	—
Owens-Illinois	—
Page & Hill, Inc.	—
Phelps Dodge Copper Products Corp.	—
Philco Corporation Gov't & Industrial Div.	8
Plastic Wire & Cable Corp.	47
Porter, Inc., H. K.	—
Preformed Line Products Co.	20-21
Puregas Equipment Corp.	—
Ramset Fastening System	—
Rawlplug Company, The	—
Raytheon Company	—
Recordak Corp.	—
Reichhold Chemicals, Inc.	—
Reliable Electric Company	—
Relton Corporation, The	71
Remington Rand Div.	—
Republic Creosoting Co.	—
Rex Corporation, The	—
Reynolds Metals Company	—
Rolatape, Inc.	—
Runzel Cord & Wire Co.	—
S & G Manufacturing Co.	—
Schauer Mfg. Co.	—
Secode Corporation	—
Seymour Smith & Son	—
Sherron Metallic Corp.	—
Sierra Electronics Corp.	—
Sloan, Cook & Lowe Co.	74
Stainless, Inc.	—
Stampings, Inc.	—
Stewart Bros.	66
Stromberg-Carlson Co.	2-3, 48-49
Superior Cable Corporation	—
Suttle Equipment Corporation	66
Taylor-Colquitt Co., The	—
Telectric Co.	75
T.E.I. Corp.	77
Tel-E-Lect Products, Inc.	—
Tele-Muff Co.	—
Telephone Engineering Co. of California	74
Telephone Supply Corp.	—
Teletype Corporation	—
Tele-Wire Supply Co., Inc.	—
Telkor, Inc.	—
Templeton, Kenly & Co.	70
Thornhill Publishing Co.	—
Transandean Associates, Inc.	—
Truck Equipment Company	—
Tudor & Yager, Inc.	74
United Electric Controls Co.	—
United States Independent Telephone Association	—
U. S. Industrial Chemicals Co.	—
United States Instrument Corp.	—
United States Motors Corp.	—
United States Steel Corp. American Steel & Wire Co. Creosote Division	—
Universal Controls Corp.	—
Utica Drop Forge & Steel Div.	—
Utility Body Co.	—
Utility Service Co., Inc.	—
Utility Tool & Body Co.	—
Warren Mfg. Co., Inc., The	—
Weikel Line Company	77
Western Electric Co.	—
Whitney-Blake Co.	51
Williams Inspection Co., Inc., A. W.	77
Wiremold Co., The	—
Wyoming Valley Equipment Div.	—
York-Hoover Corporation	—

WESTERN REPRESENTATIVE: McDonald-Thompson, 625 Market St., San Francisco, Cal.; 3727 W. Sixth St., Los Angeles; 620 Sherman St., Denver, Colo.; National Bldg., Seattle, Wash.; 3217 Montrose Blvd., Houston, Tex.; 2727 Oak Lawn Ave., Dallas 19, Tex.; 404 Times Bldg., Portland 4, Oregon.

Holan's Single-Cylinder, Three-Legged Derrick Lifts 8,000 Pounds

Three-legged ruggedness, single-lever control, 8,000 pounds of lifting power . . . are all found in the new Holan Series 11000 Derrick.

Simplicity is the secret . . . simplicity of design. It lowers the cost without lowering the quality.

Boot strap linkage makes it possible to power the Series 11000 with one powerful hydraulic cylinder. Rectangular side legs, fabricated from high tensile steel, cut weight without sacrificing strength.

Here's a derrick that handles 8,000 pounds . . . sets 60-foot poles . . . body loads 2,000 pounds . . . and lowers to within two feet of the ground.

Also shown mounted on the Holan high tensile construction body are the 4401-H Digger and Series 5095 Hydraulic Jacks.

Ask your Holan Field Representative about the Series 11000 Derrick . . . or write for complete details.

Holan Corporation, 4100 West 150th Street, Cleveland 35, Ohio
Plants in Cleveland, Ohio; Griffin, Georgia; Phoenix, Arizona

Holan

Subsidiary of THE OHIO BRASS COMPANY

HOLAN

Directories make more money

with our "Revenue Men" on the job

OUR DIRECTORY "Revenue Men"—working from 32 strategically located sales offices—providing the Independent Telephone Industry with a flexible and highly skilled telephone directory organization, are equipped to render a Complete and Quality Directory Service.

These specialists, through the use of up-to-the-minute knowledge of the market—proper sales training—imagination—ideas—leadership—and hard work, produce results which more than measure up to accepted directory revenue standards.

Yes, the "Yellow Pages" revenues, in the more than 800 directories we now produce for large and small Independent Telephone Companies, prove the statement "DIRECTORIES MAKE MORE MONEY WITH OUR 'REVENUE MEN' ON THE JOB."

Write or phone our office nearest you for our Complete Directory Service Plan.

GENERAL TELEPHONE DIRECTORY COMPANY

1800 Oakton Street • DES PLAINES, ILLINOIS • VAnderbilt 4-2164

Divisional Sales Offices:

BLOOMINGTON, Ill. • 410 N. Prairie St. • Tel.: 3-8095
COLUMBIA, Mo. • 811 Cherry Street • Gibson 2-9121
DURHAM, N. C. • 108 E. Parrish Street • Tel.: 5133
ERIE, Penna. • G. Daniel Baldwin Building • GLendale 2-4187
FORT WAYNE 2, Ind. • 229 E. Berry Street • Eastbrook 3477
HONOLULU 14, Hawaii • 1236 Waimanu St. • Tel.: 504-231
LEXINGTON, Kentucky • 157 Walnut Street • Tel.: 4-7626
LONG BEACH 15, Calif. • 1775 Ximeno Ave. • GEneva 3-7441
MADISON 3, Wisconsin • 214 N. Hamilton St. • ALpine 7-1667
MANILA, Philippine Islands • P. O. Box 673
SAN ANGELO, Texas • 110 South Taylor St. • Tel.: 6738
SPOKANE, Wash. • South 11 Monroe • MAdison 4-4336